

ROADS AND STREETS

HIGHWAYS BRIDGES
AIRFIELDS
HEAVY CONSTRUCTION

APRIL 1953

CARBIDE INSERT? or MULTI-USE?

LOCATION: Folsom Dam, Folsom, California.

OPERATING CONDITIONS: Small blast holes through blocky and decomposed granite.

With TIMKEN® carbide insert bits, H. Earl Parker Co. drills foot of granite per minute of drilling time, averages 600 ft. of hole per bit!

APPROXIMATELY a foot of penetration per minute while drilling! An average of 600 feet of hole per bit! Bit cost materially reduced. These are the results H. Earl Parker Company says it obtained by using Timken® carbide insert bits to drill small blast holes at the Folsom Dam project in California.

Timken carbide insert bits are always your best answer for highest speed through hard and abrasive ground. They're also most economical for constant-gauge holes, small diameter blast holes and very deep holes.

But they are *not* the best answer to all of your drilling problems!

More economical for ordinary ground

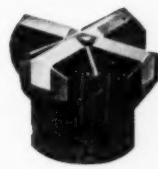
are Timken multi-use bits. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

The Timken Company makes both types of bits—both of which are interchangeable on the same steel. Whichever you choose—carbide insert or multi-use—Timken rock bits have these important advantages: (1) made from electric furnace Timken fine alloy steel, (2) special shoulder unions which protect threads from drilling impact, (3) quickly and easily changed.

For help in selecting the best bits for your job, write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".



Timken threaded multi-use rock bit



Timken threaded carbide insert rock bit

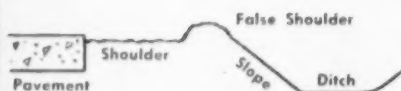
TIMKEN

... your best bet for the best bit ... for every job

Mr. Public Official:

DO YOUR HIGHWAYS HAVE A SHOULDER PROBLEM THAT THREATENS SAFETY . . . CAUSES EXCESSIVE BREAKUPS OF YOUR PAVED ROADS? IF SO . . . HERE'S A PRACTICAL, ECONOMICAL METHOD FOR FIRST RE-SHAPING, THEN MAINTAINING THOSE SHOULDERS WITH ONE MACHINE, ONE OPERATOR.

THE PROBLEM



CROSS-SECTION of typical paved road with false shoulder that prevents proper drainage, encourages erosion of shoulder material and damage to pavement.

ACTUAL PHOTO of false shoulder, consisting of sod mat 3 to 4 inches high.



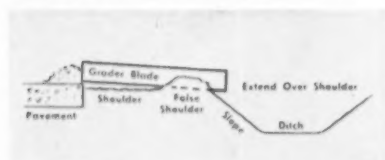
THE REMEDY



Cut off false shoulder with the Allis-Chalmers Model D's ROLL-AWAY moldboard—roll sod to edge of pavement.



Now slope shoulder with grader moldboard and feather windrow out behind with Shoulder Maintenance Blade.



Set grader moldboard as shown to insure clear cut and eliminate any obstacle to adequate drainage.



The finished job—a smooth, safe, well-drained shoulder.



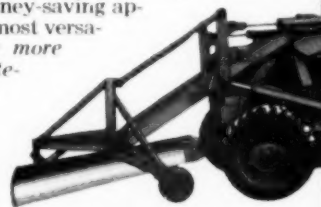
Windrow of sod consists mainly of root mat. Note that grader blade did not disturb or cut into shoulder gravel.



Load sod into truck with Model D's rear-end loader. Wide bucket lies flat on pavement, picks up cleanly without disturbing shoulder gravel.

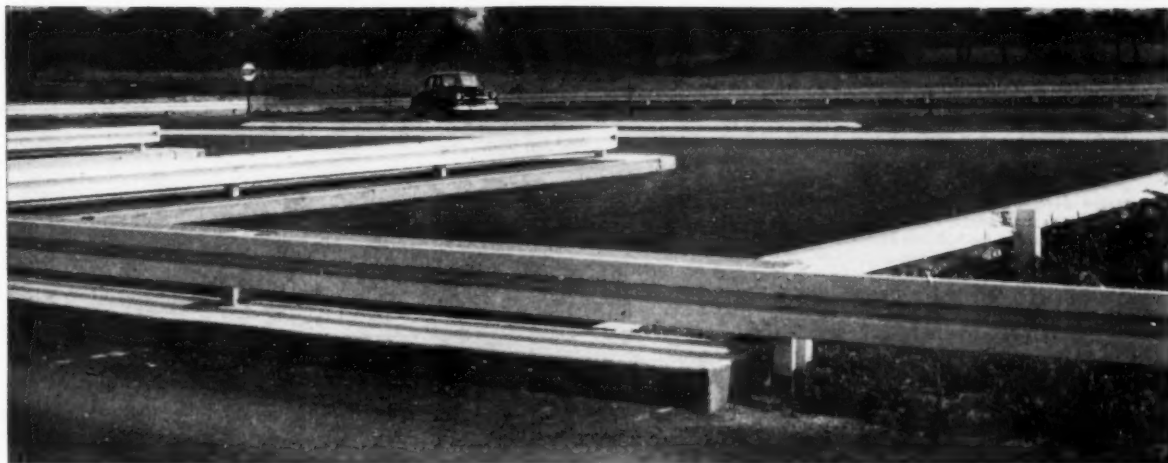
WITH false shoulder removed and proper shape re-established, the Allis-Chalmers Model D and rear-end loader with interchangeable Shoulder Maintenance Blade can keep the road in tip-top condition easily and at low cost. It's another money-saving application for the Model D, the most versatile of all motor graders. For more information on shoulder maintenance, write now for Booklet MS-896, or ask your Allis-Chalmers dealer for a demonstration.

ROLL-AWAY is an Allis-Chalmers trademark



ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Test course for new drivers has Safety-Beam protection



WHAT CANDIDATE FACES—New driving course can be completed in 4½ wheel-twisting minutes. With a state trooper at his side, the driver must negotiate an upgrade figure 8 (above) in either second or high gear, make a complete turn in one of the narrow "stalls" (above) without touching the curb or the guard rail, stop and hold the car at an upgrade stop sign (lower left), and make sharp turns (left) unexpectedly banked the wrong way. It's a workout for the troopers, too; up to 400 tests some days.

Bethlehem Safety-Beam Guard Rail—1375 feet of sturdy steel—guides rookie drivers through a new test course at the Pennsylvania State Police barracks near Bethlehem.

The same features that led to the choice of Safety-Beam here have caused highway engineers to specify it for danger spots along many miles of highway. Safety-Beam sections lock together in a continuous beam. Impact is absorbed, not by a single post, but by a number of adjacent posts. One bolt fastens Safety-Beam to any type of post, and unskilled workmen can do the job without special tools.

For complete information about Bethlehem Safety-Beam Guard Rail—and other road steel products listed below—call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts
Timber Bridge Hardware • Tie-Rods
Sheet- and H-Piling • Fabricated Structural Steel



ROADS AND STREETS

APRIL, 1953

VOL. 96

No. 4

Roads and Streets represents 60 years of continuous publishing in the highway field; combined with Engineering & Contracting and Good Roads Magazines, established in 1892

E. S. GILLETTE, President and
Publisher

CCA NBP

HALBERT P. GILLETTE, Chairman of the
Board and Editor-in-Chief

H. J. CONWAY, Assistant Publisher

A magazine devoted to the design, construction, maintenance and operation of highways, streets, bridges, bridge foundations and grade separations, and to the construction and maintenance of airports.

Coming Articles

Airfield Pavement

Design and Construction

Several new articles are in the making on phases of airfield pavement construction—be watching for them.

Winter Hauling Speeded

Minnesota Road Job

Hauling over hard frozen roads in winter—plus the trick of blending coarse and fine materials from two pits to get gradation—helped Megarry Brothers get an early start on a black-topping job.

Rebuilding a Highway

for Heavy Traffic

Second story concrete was used on a major reconstruction of U.S. 29 in North Carolina. Methods and problems to be presented.

How Is Your

Seal Coating?

Much has been written on this subject. Another article contributing to knowledge of sealing, due in R & S soon.

How to Detour 45,000

Cars a Day

How the much-publicized "Shoo-fly" in Chicago's Michigan Boulevard, right downtown, was designed and built.

And Also . . .

What the contractors were thinking about at the Miami AGC meeting . . . Emulsified asphalt for Dearborn (Mich.) streets . . . What your compressor needs to work to best efficiency . . . Spring patching and maintenance methods . . . Reason for job accidents . . . and many other articles coming along.

HAROLD J. McKEEVER, Editorial Director
C. T. Murray, Managing Editor
Col. V. J. Brown, Associate Editor

In This Issue

	Page
Roads and Streets in the News.....	53
Words of Wisdom on Highway Promotion (Editorial).....	56
Low Cost Rolled Curbs, Feature of Detroit Area Paving.....	58
When Is Contractor Liable for Transportation Tax?.....	61
Toll Road Proposals "Bustin' Out All Over".....	62
Compressed Air in Industrial Production.....	64
Cranes Replace Steel Bridge Span.....	65
Dragline Handles Cableway Bucket in Naval Hook-Up.....	66
Tallamy Urges Flexible Road Programs.....	68
New York Thruway Contractors Face Big Season.....	69
Oregon Road Relocation Based on Economic Studies.....	74
Educators Discuss Engineer Shortage.....	77
A Preventive Maintenance Routine That Won't Fizzle Out.....	78
By George M. Perry, Service Manager, Euclid Road Machinery Company	
Metering Pump Assures Accurate Spray Job.....	81
How to Compute Progress on Construction Jobs.....	82
By Commander H. W. Schleiter, U. S. Coast Guard	
Cure for High, Rutted Shoulders.....	84
Prestressed Concrete Full-Scale Beam Test.....	86
Power Impact Tool Cuts Repair Cost on Heavy Equipment.....	87
BITUMINOUS ROADS AND STREETS	
Cover Illustration—Sealing a Road in Kane County, Illinois.....	97
Information Wanted on Bituminous Additives.....	103
By H. G. Nevitt	
Asphalt Membranes—Their Service Record on the Gulf Freeway.....	104
Minnesota Improves Its Sealing Methods.....	113
Notes on Asphalt Paving Technologists Meeting.....	116
What's New in Equipment and Materials.....	88-95, 124-127
Literature on New Products.....	121
Current Trade Literature.....	96
With the Manufacturers and Distributors.....	142
Clearing House.....	128

GILLETTE PUBLISHING COMPANY

PUBLICATION AND EDITORIAL OFFICES
22 WEST MAPLE STREET, CHICAGO 10, ILL.

Chicago Office..... S. A. Phillips, Sales Manager, 22 W. Maple St.
R. T. Wilson, Mid-West Manager
J. W. Gross, Western Manager
E. Bender, Clearing House Manager
L. A. Conway, Advertising Editor
L. R. Vickers, Circulation Manager

New York Office..... M. B. Nylund, Eastern Manager, 155 E. 44th St.
Cleveland Office..... Lee B. McMahon, Vice President and Manager, Leader Bldg.
Western Office..... J. A. Osborne, West Coast Mgr., 1126 Del Rey, Pasadena 8, Calif.

Acceptance under Section 34.64 P.L. & R., Chicago, Illinois. Published monthly.
Subscription price \$5.00 per year.

FACT: They OUTWORK the rest



for **TRACTION**

—you can't beat the
SURE-GRIP

—top tire for drive-wheel
traction on graders and
pans



for **ROCK WORK**

—you can't beat the
HARD ROCK LUG
—super-tough champ for
all kinds of rock work



for **FLOTATION**

—you can't beat the
ALL-WEATHER
—the earth mover that's
finest for free-rolling
wheels

PROOF:

**More tons are hauled on
Goodyear tires than on any other kind**

Always Buy and Specify

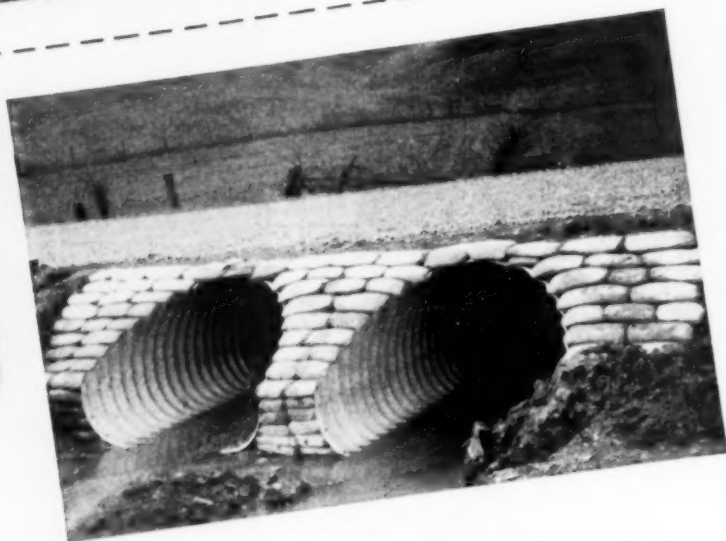
GOOD YEAR
—it pays!

Sure Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio.

When writing advertisers please mention ROADS AND STREETS, April, 1953

**Bury
Your
Bridges**

to make
them
better



Here is the way to bury your bridge problems once and for all. Armco Drainage Structures will provide adequate waterway area and let you enjoy all the advantages of building your highways and streets on solid ground.

Armco structures have the flexible strength of corrugated metal design. They will handle any load that travels your road. Equally important they are fireproof and practically maintenance-free. Long, dependable service is assured. Today there are thousands of installations, and earth fills

up to 100 feet are not uncommon.

There is a type of Armco structure to meet every drainage problem. Standard, round corrugated metal pipe is ideal for smaller culverts; where headroom is limited Armco Pipe-Arch provides efficient drainage; and Armco MULTI-PLATE Pipe and Pipe-Arch extend the advantages of corrugated metal design into the larger sizes.


You also select the material durability best suited to service conditions. Plain galvanized is economical for normal service. Additional protection

is obtained by adding a bituminous coating. Where severe corrosion is a problem there is Armco ASBESTOS-BONDED. For erosion Armco PAVED-INVERT offers utmost protection. A wide range of sizes meet your needs.

Use Armco Drainage Structures for dependability and economy. Write for data. Armco Drainage & Metal Products, Inc., 2493 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO DRAINAGE STRUCTURES





60 tons an hour on a 2-mile haul

This Caterpillar DW10 Tractor and No. 15 Scraper are loading river gravel mixed with sand — a “dead” material, difficult to handle. Although haul distance is two miles, this husky yellow team moves 60 tons of gravel in 60 minutes. Owned by K. C. Dack of Milton, Ore., they are under hourly contract to repair a secondary road in Morrow County.

Mr. Dack has two DW10s with No. 15s hauling gravel on this job, push-loaded by a Cat* D8 Tractor. “They load faster, with bigger and better loads than any other scraper,” he reports. The No. 15 Scraper is designed to be a real producer on long hauls. With its pumping action, it can get heaped loads of even “dead” material quickly and smoothly. And, with its low center of gravity, the No. 15 remains stable where the going is rough.

Its teammate, the Cat DW10 Tractor, can highball at speeds up to 24.5 m.p.h. Its long-lived Caterpillar

Diesel Engine delivers an honest 115 HP, on inexpensive No. 2 furnace oil. This rugged team is built to stay on the job without tinkering. Beefed-up construction and high-quality Caterpillar manufacture mean that it can earn you profits for years to come.

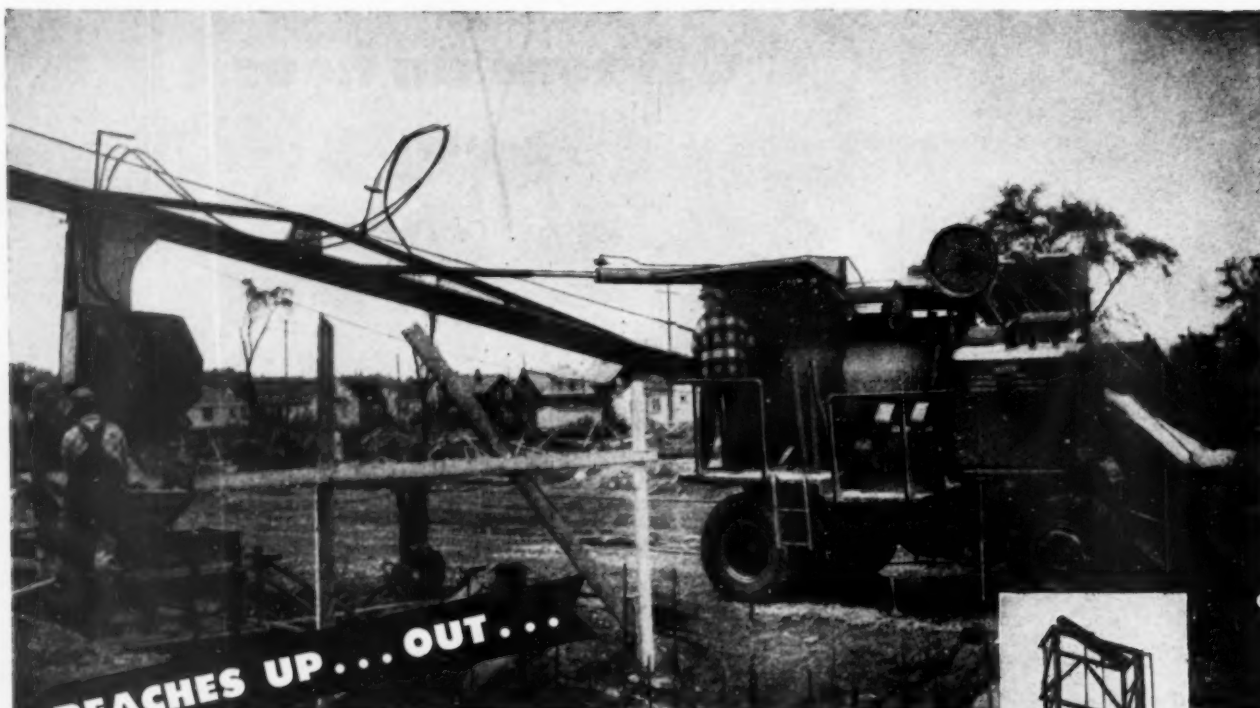
Your Caterpillar Dealer will gladly demonstrate the fast-hauling tractor and scraper that fit your needs. And you can rely on him for after-sales service and genuine factory parts. Call him today.

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—(C)

**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**



REACHES UP... OUT...

DISCHARGES CONCRETE anywhere

KOEHRING 16-E *twinbatch*®

mixes and pours concrete for buildings, pilings, bridges and culverts . . . paves highway and airport strips . . . batches into trucks . . . discharges concrete into overhead forms, hoppers, chutes. It's never "grounded". Elevating boom reaches up and out 60° . . . bucket discharges at a height of 21 feet (higher with special boom). Power-controlled boom also swings in a 160° arc . . . is self-locking, holds in any position for accurate spotting and discharge.

CONTROLLED-DISCHARGE BUCKET

dumps anywhere along the 25-foot boom. Clam-shell-type door on bucket is hydraulically operated . . . can be opened or closed at any time for gradual discharge. Water-level capacity is 24 cu. ft.

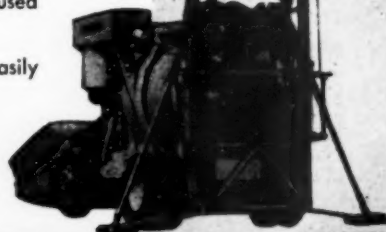


That's more than ample to hold the full 16 cu. ft. batch of concrete, plus 10% overload.

48½-FT. DISCHARGE HEIGHT ↑ WITH TOWER

On the Koehring 16-E, the elevating boom is interchangeable with a 40 or 60-foot tower . . . gives you discharge heights up to 48½ feet for pouring high columns, piers, decks and floors. Hoist bucket discharges automatically into 40 cu. ft. overhead hopper. Tower is raised, or lowered into carrying position, by the same hydraulic ram used on elevated boom.

This versatile Koehring 16-E easily mixes and distributes up to 50 cu. yds. of concrete per hour. Also check its 6 m.p.h. rubber-tired mobility. Ask, too about Koehring 34-E twinbatch.



SEE YOUR KOEHRING DISTRIBUTOR FOR COMPLETE FACTS

KOEHRING *twinbatch*® PAVERS

FINISHERS • CONSTRUCTION MIXERS • CRANES • EXCAVATORS • DUMPTONS® • MUD-JACKS®

KOEHRING Company, Milwaukee 16, Wisconsin

Subsidiaries . . .



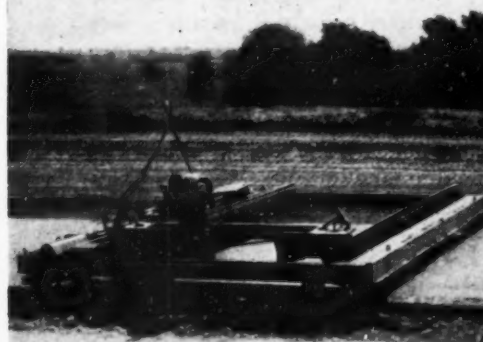
BUCKET TRAVELS 183 FT. PER MIN.

on horizontal beam (92' per min. elevated) ... pours controlled batch anywhere along beam. Simultaneous bucket travel and beam swing speed distribution with 16-E.



BIG-PRODUCTION 34-E twinbatch

hits top output of 86.7 batches an hour (60-second mixing time). This reserve production capacity picks up lost time from normal delays, assures fast schedules.



"TIMELY", PRECISION - FINISHING

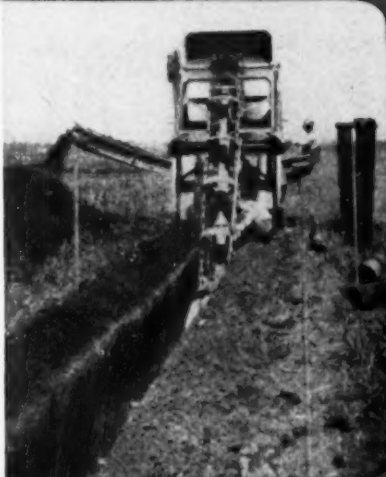
Keehring Longitudinal Finisher can operate at almost twice the speed of a 34-E paver, produce mechanically-accurate slabs, 8 to 30', with uniform crown transitions.

JOHNSON • PARSONS • KWIK-MIX

93/4-ft.-per-min. Parsons 250 Trenchliner*

With 30 digging feeds, Parsons 250 Trenchliner produces up to 9 3/4 feet of clean-cut trench per min. ... digs 16" to 42" wide, up to 12 1/2 feet deep ... cuts within 11" of either side. Reversible spoil conveyor shifts through machine by power in less than 1 min. to dump right or left. Constant discharge height speeds loading into trucks. Larger and smaller models are also available ... contact your Parsons distributor now.

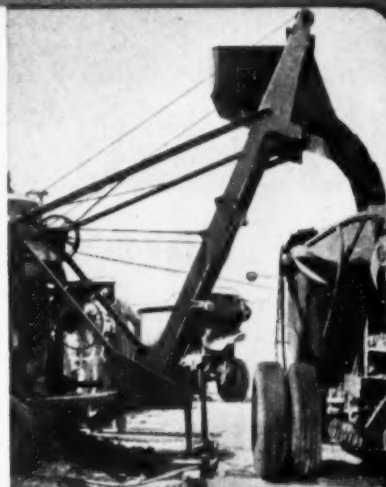
PARSONS (Keehring Subsidiary)
Newton, Iowa



9'-1" discharge with Kwik-Mix Tower Loader

This Kwik-Mix Tower Loader fits 11-S and 16-S Dandie® concrete mixers, discharges at 9'-1" into trucks, overhead hoppers, or stockpiles. Bucket holds full batch, is powered by mixer engine and dumps automatically at top of tower. Also available for Kwik-Mix No. 10 and 14 bituminous mixers. Get complete information from your Kwik-Mix distributor, or send for literature on low-cost, time-saving Tower Loader today.

KWIK-MIX (Keehring Subsidiary)
Port Washington, Wis.



254 to 611-bbl. Johnson Single Silos

In various sizes of 11' and 12' diameters, provide 254, 373, 492, 611-bbl. and larger cement storage. Gasoline or electric-driven screw conveyor and bucket elevator, box-car, truck receiving hoppers or undertrack unloading arrangement, electric bin signals, aeration diffusers, one or two 1000-lb. batchers. Larger batcher, added leg and elevator height available for mix truck charging. Silos are 1-piece, all-welded.

C. S. JOHNSON (Keehring Subsidiary)
Champaign, Ill.





Gradall turns a limited operation into a profitable business!

GRADALL's advanced design, plus the foresight and determination of two contractors, has made a marginal slag pit operation at Dover, Ohio, a money-making business.

Farbizo Slag, Inc. was organized in 1948 to work a 38-acre slag pit which they had leased—land that had originally been a swamp. Most of the pit was already worked down within a few feet of the bottom, and these lower layers were compressed until they were nearly as hard as concrete. Attempts to expose a working edge by blasting only resulted in uncovering the old swamp, making it impossible to approach the exposed face of the

slag without crossing the swamp. Also, continued blasting and loading was not economical.

It was then they saw a Gradall in action—and the solution to making good on their investment. Parked on top the slag, the Gradall exerted its powerful down-pressure and bucket "wrist" action to cut back into the slag, efficiently removing it right down to the swamp.

Business prospered and within a few months Farbizo bought a second Gradall. Not only have the machines increased production, but they have also extended the life of the pit many years by making it possible to remove slag right down to the pit floor.

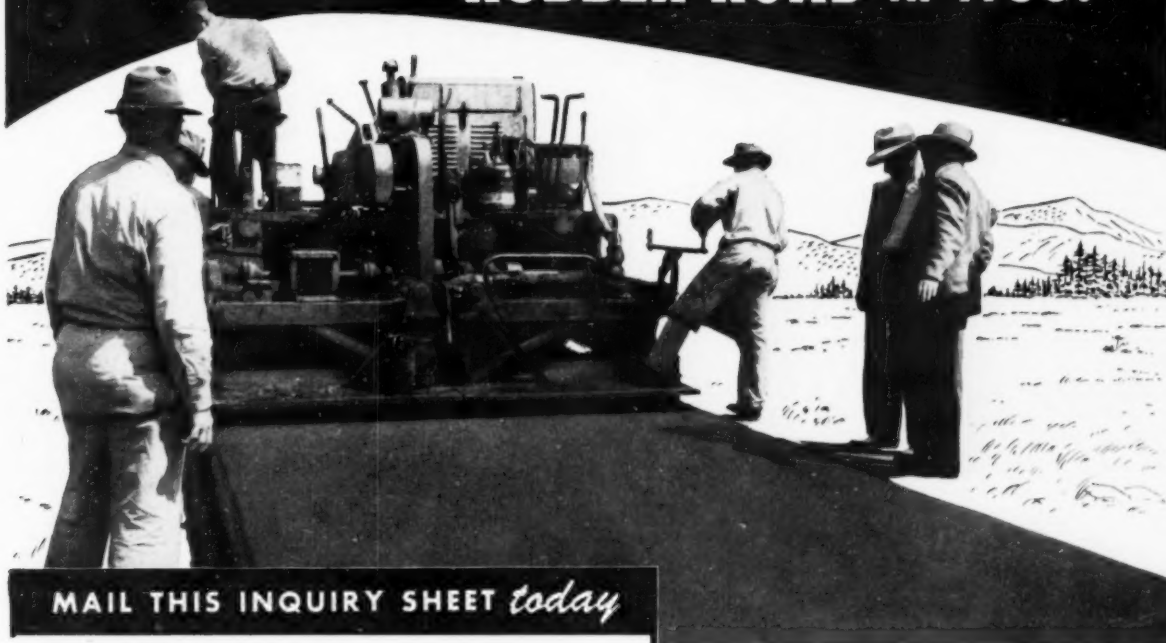
This story is typical of how a Gradall's efficiency and many uses have "paid off" for its owner. Many smaller contractors have similarly been able to enlarge their operations—to take on larger, more profitable contracts with this multi-purpose machine. Larger contractors keep Gradalls busy on many and varied "clean-up" jobs formerly done only by hand labor. But let your nearest Gradall Distributor show you how a Gradall can build profits for you—contact him for a field demonstration.

**Gradall Distributors in over 75 principal cities
in the United States and Canada**



YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

NOW is the time to plan for your test RUBBER ROAD in 1953!



MAIL THIS INQUIRY SHEET *today*

NATURAL RUBBER BUREAU

1631 K Street, N. W., Washington 6, D. C.

With no obligation, please send me engineering data for laying a test strip of natural rubber-asphalt pavement as follows:

1. Length of proposed test strip miles
Width of proposed test strip feet
2. New Construction ☐ Resurfacing ☐

PLANT MIX

Type: Hot ☐ Cold ☐

Grade of Asphalt

Penetration

Depth of Top Course inches

Aggregate Content %

Aggregate Top Size %

Bitumen Content %

SURFACE TREATMENT

Grade of Bitumen

Application Rate gals. per sq. yd.

COVER MATERIAL

Type of Aggregate

Size of Aggregate

Lbs. per sq. yd.

Name

Title

Dept.

Address

City State

☐ Please send booklet "STRETCHING HIGHWAY DOLLARS WITH RUBBER ROADS"

☐ Please send information about new 30-minute motion picture on rubber roads

Many Engineers Planning Rubber Roads This Year

The biggest road-building season in America's history will soon be in full swing. High on the priority list of jobs in many states and cities will be a test strip of natural rubber-asphalt road.

Results from more than a score of test roads of natural rubber laid in the U. S. since 1949 give definite promise of a new era in highway building. Both laboratory and in-place studies indicate that natural rubber roads will last longer, require less maintenance and aid greatly in stretching overburdened highway budgets.

If you have not already investigated this newest highway development we urge you to plan now for a test rubber road installation during the 1953 paving season.

The Natural Rubber Bureau's Research Laboratory is staffed with experienced highway engineers who are ready to assist you with technical data on installing natural rubber roads.

Simply fill out the coupon and mail it to the

Natural Rubber Bureau

1631 K STREET, N. W. WASHINGTON 6, D. C.

Natural Rubber Bureau Research Laboratory
Rosslyn, Virginia





DOWFLAKE SAVES UP TO \$300 PER MILE ON GRAVEL ROAD MAINTENANCE COSTS

Actual experiences show that DOWFLAKE treatment
reduces gravel loss 80% and grading costs 85%



That's right! You can actually save up to \$300 per mile per year by treating your gravel roads with Dowflake® (Dow calcium chloride 77-80%). By stabilizing roads with Dowflake, gravel loss can be cut 80% and grading costs can be reduced 85%. These figures have been proved by experience under actual conditions on typical roads.

The annual surface loss on untreated gravel roads ranges from one half an inch for local roads to three quarters of an inch for primary roads. On Dowflake treated roads, the saving of 80% means a saving of almost five eighths of an inch or over 160 cubic yards of gravel per mile.

The 85% saving on grading costs on Dowflake-treated roads is important from the standpoint of available manpower and equipment . . . both can be used more economically, which means dollars saved.

In your locality you may realize even greater economies with Dowflake, for the amount of road travel and costs of material and labor vary. In addition to road stabilization, Dowflake is being used on gravel roads throughout the country to keep down dust and to decrease the damage of spring breakups by reducing the effect of frost.

Ask about Peladow®, Dow's new high-test, pellet-form calcium chloride (94-97%) also engineered for highway use. In addition to 100 lb. bags, Peladow can be shipped bulk in closed hopper cars.

Contact Dow now and get the complete story on how Dowflake and Peladow can make *better—more economical—and safer roads*. THE DOW CHEMICAL COMPANY, Midland, Michigan.

you can depend on DOW CHEMICALS



They're Here!

GREATEST FORD TRUCKS EVER BUILT!

For faster handling on any job, Ford Trucks have new, shorter turning. New, wide-track, set-back front axle provides sharper turning angle—easier maneuvering and parking.



Fifty Years Forward
on the American Road!



Deluxe cab illustrated.

Completely New for '53 FORD *ECONOMY* TRUCKS

NEW TIMESAVING FEATURES GET JOBS DONE FAST!

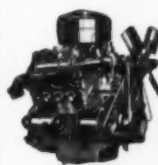
Ford Economy Trucks for '53 are completely new from the tires up! New cabs, new chassis, new power, new transmissions . . . every inch specifically designed to provide fast, economical transportation. New Ford Truck timesaving features **GET JOBS DONE FAST** . . . at still lower cost per mile!

NEW "DRIVERIZED" CABS cut driver fatigue!



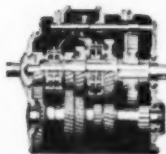
New one-piece curved windshield, 55% bigger! Wider seat, with new shock absorber. Larger door opening, push-button handles.

NEW LOW-FRICTION POWER! Choice of 5 engines . . . V-8 or Six!



Overhead valve, 101-h.p. *Cost Clipper* Six, 145- and 155-h.p. *Cargo King* V-8's—cut down on friction power waste, save gasoline. Also, 106-h.p. Truck V-8 and 112-h.p. Big Six.

NEW TRANSMISSIONS . . . widest choice in truck history!



Synchro-Silent transmission on all models at no extra cost. Steering post shift on 3-speed transmissions. New *Fordomatic Drive* or *Overdrive* now available on all $\frac{1}{2}$ -tonners at extra cost.

4 COMPLETELY NEW LINES over 190 completely new models!

9 Conventional F-Series. Up to 27,000 lbs. G.V.W.; 55,000 lbs. G.C.W. Pick-up, Panel, Express, Stake bodies.
4 Cab Forward C-Series. Up to 23,000 lbs. G.V.W. Up to 48,000 G.C.W.
2 Parcel Delivery P-Series. Bodies up to 12½ ft. Up to 14,000 lbs. G.V.W.
4 School Bus B-Series. For up to 60-pass. bodies. Up to 20,000 lbs. G.V.W.

FREE! MAIL THIS COUPON NOW!

FORD Division of FORD MOTOR COMPANY
P.O. Box 658, Dearborn, Michigan

Please send me without charge or obligation, complete details on new Ford Economy Trucks for '53!

FULL LINE ☐ HEAVY-DUTY MODELS ☐
LIGHT MODELS ☐ BIG JOB MODELS ☐
PARCEL DELIVERY ☐ CAB FORWARD MODELS ☐

Name _____
(PLEASE PRINT PLAINLY)

Address _____

City _____ State _____
T-14 Check here if student ☐

*Babler Bros.
& Rogers*

lick narrow work
adverse grades,



18-ton Tournarocker is loaded with 10 yds. of dirt and boulders in 5 shovel passes.

Rig makes 90° turn in 13' 9" radius (in dump position, unit can turn in 10' 6" radius).



areas, congested traffic, with **2 C TOURNAROCKERS**

In relocating Harman Creek section of the Columbia River Highway at Cascade Locks, Contractors Babler Bros. & Rogers, Portland, Oregon, faced three major problems:

- 1) Load and dump areas were narrow and congested;
- 2) Cycle involved travel through heavy traffic on U.S. 30;
- 3) 4300' haul to fill included 1000' of 5% adverse grade.

To meet these conditions, Babler Bros. & Rogers assigned a large share of their 100,000-yd. job to 2 fast, highly-mobile C Roadster Tournarockers. Here's typical production for their 18-ton rear-dumps:

Move 100 pay yards hourly on 4300' haul

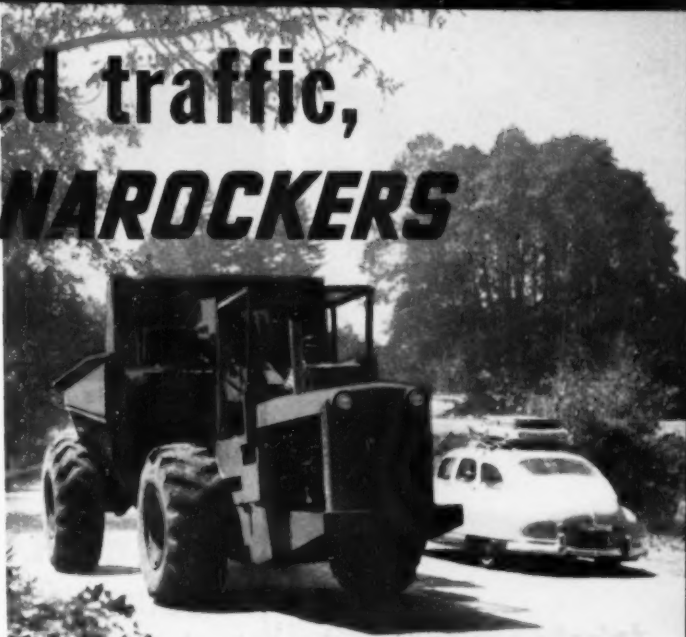
Loaded in 5 passes from a 2½-yd. shovel, Tournarockers got approximately 10 pay yards of boulders and dirt per load. In spite of stops for auto traffic and delays at the shovel, each rig completed an 8600' cycle every 11.3 minutes. That's 5 round trips, 50 to 55 pay yards per hour per unit. Combined production for both "C's" averaged 1000 pay yards per 10-hour day. Very satisfied with this output, Contractor Glen O. Stevenson calls Tournarocker the "most versatile machine yet used."

"Best rig I ever ran," says Operator Walker

Tournarocker's fingertip electric controls and positive power steer made a big hit with operators, too. As Lynn Walker puts it, "I've been operating 14 years, and this is the *best* rig I ever ran. I'm really a dozer man," he adds, "but I'd rather run the Tournarocker."

Whenever you have dirt to move, it will pay you to compare your output with production figures on speedy LeTourneau rear-dumps, bottom-dumps, scrapers and dozers. Ask your LeTourneau Distributor for owner-verified reports on work like yours.

R. G. LeTOURNEAU, INC.
Peoria, Illinois



➤ With 4-wheel air brakes, Tournarocker hauls along narrow roads, through traffic in complete safety.



➤ Big 9½' x 12½' bowl, low 8' loading height, gives shovel operator big target, speeds loading.

➤ Operator flicks electric dashboard switch, dumps 10 to 11-yd. load in 12 seconds.

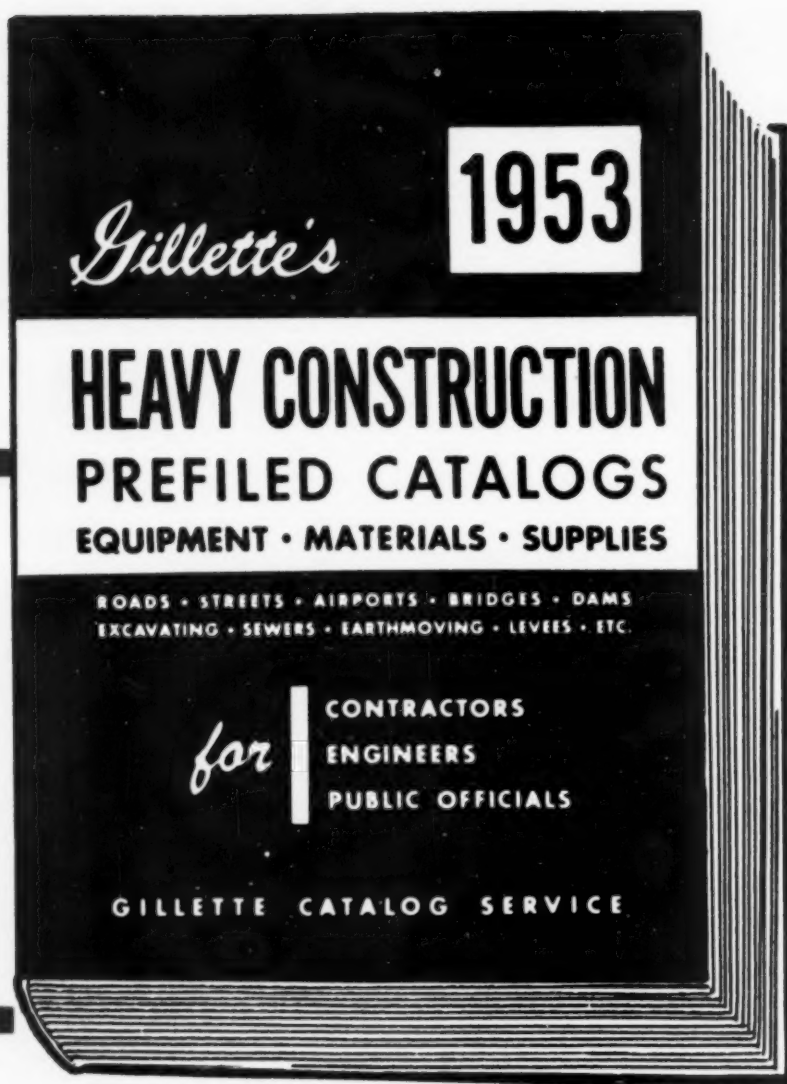


Tournarocker—Trademark, R-53

***It's in your
Office Now . . .***

(or will be soon)

**KEEP IT HANDY—
USE IT OFTEN—**



Your most useful source of Buying Information

- This book saves you cabinet and floor space and the secretarial time that would otherwise be spent in classifying and filing individual manufacturers' catalogs.
- It saves you, too, the time and trouble of writing to manufacturers for the information you need. Here are enough facts to enable you to study the product that interests you and to decide whether to call your local dealer or distributor for decisive action.
- When you want information quickly, on a certain class of product or on the product of a specific manufacturer, turn first to the index for the name or trade name of the product in which you are interested and then to the manufacturers' catalog which is arranged in alphabetical order by manufacturers' name.

When you are in the market for new construction equipment, materials or supplies, turn to Gillette's Heavy Construction Prefiled Catalogs for information on what to buy and from whom. Here's the swift, economical and satisfying way to make your pre-purchase studies. In this single volume America's leading manufacturers of these products have placed their catalogs, many of them specially designed for your convenience—"boiled down" to save you time and energy.

CATALOGS...

the way you asked for them—PREFILED

Contractors, engineers, public officials PREFER receiving manufacturers' catalogs PREFILED rather than to have individual catalogs sent by manufacturers. Individual catalogs are usually mislaid or thrown away.

The manufacturers listed below have followed your wishes—and at considerable expense. Through the PREFILED method they have supplied you with catalog information on their products in the current 1953 edition of Gillette's Heavy Construction Catalog File (See opposite page). Be sure to take advantage of this information. Use the Gillette Catalog File all the time. Keep it handy every day—every week. Use it often. Consult the Catalog File when you want information before buying new equipment, materials or supplies.

Here is the list of manufacturers who have supplied you with buying information on their products.

Adams Manufacturing Co., J. D.
 Allis-Chalmers Manufacturing Co.
 All Purpose Spreader Company
 American Air Filter Co.
 American Booth Corporation
 American-Coleman Company
 American Manganese Steel Division
 American Marietta Co.
 American Steel & Wire
 American Tractor Equipment Corp.
 Anthony Company
 Arma Drainage & Metal Products, Inc.
 Arrow Manufacturing Company
 Austin-Western Company
 Baldwin-Lima-Hamilton Corp.
 Badger Machine Co.
 C. L. Ballard
 Beardley and Piper
 Bicknell Manufacturing Company
 Briscoe & Son, E. V.
 Bros Sailer & Mfg. Co., Wm.
 Buda Company, The
 Buffalo-Springfield Roller Co., The
 Butler Sio Company
 Carvey Manufacturing Co., The Philip
 Carson Company, W. V.
 Carter Co., Ralph B.
 C. H. & E. Manufacturing Co., Inc.
 Chascoe Manufacturing Co., Inc.
 Cleaver-Brooks Company
 Cleveland Farmgrader Co., The
 Cleveland Frog and Croaking Co.
 Cleveland Trencher Company, The
 Clippard Manufacturing Co.
 Clyde Iron Works

Concrete Surfacing Machine Co.
 Crockett Brothers
 Cummer & Son Company, The F. D.
 Cummins Engine Company, Inc.
 Davenport Boiler Corporation
 Detroit Diesel Engine Division
 Dixie Telly-Ha, Inc.
 Dorsey Trailers
 Eagle Crusher Co., Inc.
 Electric Tamping & Equipment Co.
 Erie Steel Construction Company
 Falkner Manufacturing Co.
 Fiske Brothers Refining Co.
 Flexible Road Joint Machine Co., The
 Flintkote Company, The
 Foundation Equipment Corporation
 Frane Manufacturing Co.
 Gallon Allsteel Body Company
 Gallon Iron Works & Mfg. Company
 Gar Ward Industries, Inc.
 General Excavator Co.
 General Motors Corporation
 Gladhill Road Machinery Co., The
 Goodall Rubber Company
 Halsey Mfg. Co., Inc., Geo.
 H. & L. Teeth Co.
 Hammernilla, Inc.
 Harntke-Hager Corporation
 Hawk Manufacturing Co.
 Heltral Steel Form & Iron Co.
 Harman Motors Corporation
 Highway Equipment Co., Inc.
 Home Accessories Company

Hough Co., The Frank G.
 Huber Manufacturing Co., The
 Jackson Vibrators, Inc.
 Johnston and Jennings Co.
 Joint Equipment Company, Inc.
 Joy Manufacturing Company
 Keystone Asphalt Products Company
 Krieger Co., Jos. E.
 La Crosse Trailer Corporation
 Leone-Neville Co., The
 Le Rel Company
 Lincoln Electric Company, The
 Littlefield Bros., Inc.
 Lubriplate Division
 Marlow Pumps
 Master Vibrator Company
 Michigan Power Shovel Company
 Minneapolis-Moline
 Neapetuck Chemical Division
 Noble Company
 Lincoln Electric Company, The
 Oliver Corporation, The
 Omaha Standard
 Ogan, D. W. & Sons, Inc.
 Osgood-General
 Ottawa Steel Products, Inc.
 Owen Bucket Co., The
 Pacific Car and Foundry Company
 Page Engineering Company
 Philadelphia Textile Finishers, Inc.
 Phoenix Products Co.
 Pioneer Engineering Works
 Pitman Manufacturing Company
 Porter, Inc., H. K.
 Republic Steel Corporation
 Rhodell Corp., W. A.

Rogers Brothers Corporation
 St. Paul Hydraulic Hoist
 Salem Tool Company, The
 Sauerman Bros., Inc.
 Schramm, Inc.
 Service Supply Corporation
 Servisized Products Corp.
 Shunk Manufacturing Company
 Standard Steel Corporation
 Sterling Engineering & Mfg. Co.
 Stew Manufacturing Company
 Summer Equipment Limited
 Super-Compactors, Inc.
 Symons Clamp & Manufacturing Co.
 Syntex Company
 Talbert Construction Equip. Co.
 Tarrant Mfg. Co.
 Thurman Machine Co., The
 Timken Roller Bearing Co., The
 Titan Chain Saws, Inc.
 Transport Trailers, Inc.
 Tutthill Spring Company
 Universal Engineering Corp.
 Vibro-Plus Products, Inc.
 Vulcan Tool Manufacturing Co.
 Warner & Swasey Co.
 Waterloo Foundry Co., Inc.
 Waukegan Motor Company
 Wellman Engineering Co., The
 Whitehaven Trencher Co., Inc.
 Wico Electric Company
 Williams Farm Engineering Corp.
 Winter-Weiss Co., The
 Wyoming Valley Equipment Co., Inc.
 Yarn Manufacturing Co., Inc.



ARE MAINTENANCE

... then check the BLAW-KNOX "COMPLETE"

EVEN the best of equipment needs maintenance and repair, and when one machine goes down, your whole project marks time. You can avoid such maintenance bottlenecks by taking advantage of *all* the benefits offered by a "Package" paving system, because the Blaw-Knox "Complete Package" is more than just a package of equipment . . . it's a one-source package of *everything* you need . . . from experienced assistance with your problems, right down to preventive maintenance to help you eliminate bottlenecks.

When you get all your equipment from one source, you can be sure that each machine is engineered to match the others in size, capacity and operation. You get the most efficient sequence of operations without overtaxing some machines to keep up with the others. Balanced production with Blaw-Knox matched equipment reduces breakdowns and keeps operations flowing at a steady, productive pace.



BLAW-KNOX EQUIPMENT

Farmers Bank Building

NEW YORK • CHICAGO • PHILADELPHIA



BOTTLENECKS CHOKING YOUR PROFITS?

ONE-SOURCE advantages of the "PACKAGE" of concrete paving equipment

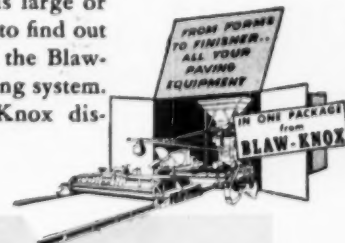
With one-source equipment, you have the advantages of one-source maintenance and repair service for *all* your equipment. There's no need to waste time and effort running down the parts or service you need . . . often one phone call to your Blaw-Knox distributor is all that's required, because one Blaw-Knox trained man can service *all* your package equipment. And when he services the machine that needs immediate attention, he can check over all the rest of your equipment to stop trouble before it starts. Preventive maintenance is standard practice when all your equipment belongs to one family. From your Blaw-Knox distributor you get prompt service on genuine factory-built parts as well as expert attention to your problems from men who are experienced on all kinds of construction work, who know "package" operation backwards and forwards and who are trained to help you get the most out of your equipment.

In addition, you get all these other one-source

advantages . . . you get every piece of equipment you need *in a package to fit your specific job*. You get it all on one order, in one shipment, with just one financial contact, and backed by one reliable manufacturer who gladly assumes responsibility for the field performance of all your equipment.

When you bid successfully on a contract, your battle starts against weather, supplies and aggravating downtime. Blaw-Knox can't do anything about the weather, but when you use the Blaw-Knox "Complete Package" of equipment and service, you can be sure of licking profit-choking maintenance bottlenecks.

Whether your job is large or small, it will pay you to find out all the advantages of the Blaw-Knox "Package" paving system. Talk to your Blaw-Knox distributor today.



DIVISION of Blaw-Knox Company
Pittsburgh 22, Pennsylvania
 BIRMINGHAM • WASHINGTON • SAN FRANCISCO

BLAW-KNOX

**Cutting fleet costs on
OPERATION:**

START-STOP!



**Now, over 90,000 miles
between overhauls with . . .**

STANOLUBE HD-M

REG. U. S. PAT. OFF.

Motor Oil

● Buri's Sunlit Bakery, Eau Claire, Wisconsin, kept its fleet of trucks hustling to deliver fresh bakery goods on schedule over ever busier routes. More continuous operation and tougher start-stop conditions caused maintenance troubles. Individual units averaged only 40,000 miles between overhauls.

Upon the advice of a Standard Oil automotive lubrication specialist, the fleet was switched to STANOLUBE HD, Standard's original heavy-duty motor oil. Deposit troubles previously experienced with a conventional lubricant were eliminated. Mileage between overhauls for individual units approached 90,000.

Recently, the officials of Buri's Sunlit Bakery adopted Standard's new and better STANOLUBE HD-M Motor Oil for use in their fleet engines. When one of the units was overhauled after 97,000 miles operation on STANOLUBE HD-M, engine internal parts were found to be clean as new. Officials report that through use of Standard's products and service they have reduced maintenance costs 30%.

Make the experience of this fleet your basis for investigating the benefits offered by STANOLUBE HD-M Motor Oil. You can obtain the services of a Standard Oil Automotive Engineer by phoning your local Standard (Indiana) office. Or, write: Standard Oil Co., 910 S. Michigan Ave., Chicago 80, Ill.

STANDARD OIL COMPANY (Indiana)



...now it's better than ever!



the OLIVER Model "B" Crawler

WITH WARE LOADER

Long considered the finest tractor-loader combination in its class, the Oliver-Ware Model "B" is now built for even greater performance. There are now 5 lower track wheels instead of 4, and the front idler wheel is considerably larger. This means you get more track on the ground, greater stability, more traction, easier handling all the way around. It means faster loading cycles, more work done per day, lower costs and more profits for you.

You still get the hydraulically-controlled Ware loader—designed and built exclusively for the Oliver

Model "B" Crawler. 110° bucket rotation and 28° "tilt back" give you a full bucket every time. Bucket level is automatically maintained when lifting load, preventing wasteful spillage. You can control speed of discharge. And, even with the "tilt back" action, you still have a 32° (from vertical) dump angle... a control range no other loader can surpass.

For complete information on how the Oliver-Ware Model "B" tractor loader can cut costs for you, see or write your Oliver Industrial Distributor.

THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois



A complete line of industrial wheel and crawler tractors

When writing advertisers please mention **ROADS AND STREETS**, April, 1953

MAKE NO MISTAKE . . .

Jaeger gives you most air per

1. **COMPARE YOUR PURCHASE COST:** In every case, the price of your "New Standard" Jaeger Compressor is lower than those asked even for out-dated "old standard" machines.
2. **COMPARE YOUR COST PER CUBIC FOOT OF AIR:** Your "New Standard" Jaeger, although it costs you less to buy, delivers 15% to 25% more cubic feet of air per minute, at full 100 lb. pressure.
3. **COMPARE YOUR JOB COSTS:** 15% to 25% more air means 90 to 100 lbs. pressure behind a full set of air tools instead of mere 70 lbs. pressure; greatly increases their speed and impact, *actually produces 30% to 40% more work with the same men and tools.*



Model 75: First compressor to run a heavy duty breaker efficiently.

Model 125: First compressor to run 2 heavy duty breakers efficiently.

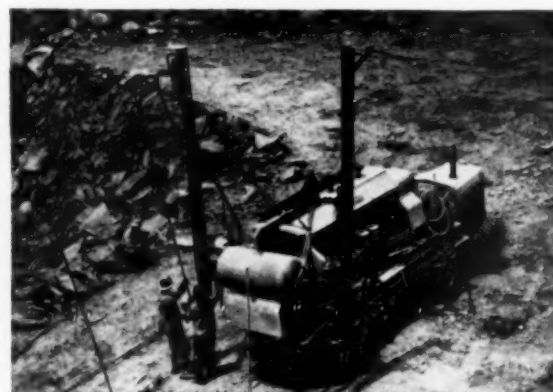


Model 185: First compressor to run 3 heavy duty breakers efficiently.

Model 250: First compressor to run 3 1/2" wagon drill or 2 heavy rock drills efficiently.



Model 365: First to run a 4" wagon drill with air to spare for plug hole drilling, or power a 15/32" sand-blaster or large Ka-Mo earth drill efficiently.



Model 600: First to run 2 heavy wagon drills or a big 9B-3 pile hammer efficiently. First Jaeger "new standard" rating to be copied by the entire industry.

dollar any way you figure it



No other compressor, at any price, gives you these "air plus" features, or Jaeger's 5 years of proved performance at "new standard" ratings

- Balanced 2-stage, W-type compressor unit standard in every size from 75 to 600 ft. Cooler and smoother running than any V-type.
- 75% to 100% larger valves for free air flow, and up to 10 times longer valve life.
- Larger intercoolers and air receivers to cool and handle 15% to 25% more air.
- Relief valve for automatic drainage to insure drier, cleaner air, standard on all models.

- Positive lubrication by gear driven oil pump with flooded suction standard on all models.
- Automatic "Fuel Miser" is standard on all Jaeger models where the automatic control of engine speeds effects worthwhile fuel savings.
- Bigger multiplate clutches than other compressors and bigger engines operating at conservative speeds.

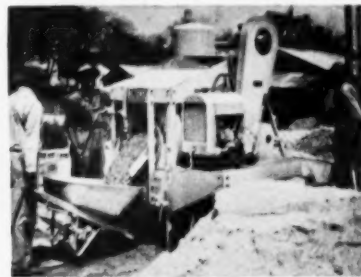
For full details about compressors, tools and their air requirements ask your Jaeger distributor or send for Catalog JC-1.



Jaeger Paver-Type Aggregate Spreader costs half the price of bituminous pavers, lays base and surface aggregates, free-flowing hot or cold bituminous mixtures and plant-mixed stabilized soil. Lays thicknesses up to 12", widths up to 12' 6", depending on gradation of material. Ask for Catalog SPS-1, which gives full details.



Jaeger "Sure Prime" Pumps are built over-size with larger shells and impellers, hold more priming water, have double priming action and engines of highest horsepower applicable. Deliver full volume at conservative speeds. Sizes 2" to 10" with capacities of 10,000 to 240,000 gph. Full information in Catalog P-10.



Jaeger "Speedline" Mixers charge in 5-7 seconds with famous "Skip Shaker" loader, discharge equally fast with bigger bucket and flight blades. Machined high carbon steel drum tracks, Timken bearing rollers, bigger engines, automotive transmissions for long life, low maintenance. Sizes 6S, 11S, 16S. Send for Catalog M-10.

THE JAEGER MACHINE COMPANY

223 Dublin Avenue, Columbus 16, Ohio

Sales, rentals and service in 153 cities of United States and Canada and all other principal cities of the world.

When writing advertisers please mention **ROADS AND STREETS**, April, 1953

Southern Superintendent Says
**"We load quicker, haul faster and
Move More Dirt!"**



INTERNATIONAL

POWER THAT PAYS



Atlanta airport expansion job is scene of new triumph for International power

When C. A. A. district headquarters decided to move to Atlanta, Georgia, the east-west runway at nearby Fulton County Airport had to be extended to 5,000-foot length.

One contractor, C. L. Rhodes of Decatur, Georgia, is doing the entire job, including cutting through a 39-foot hill and moving 350,000 cubic yards of sandy clay.

Rhodes' General Superintendent, R. N. Smith, tells how the work is going:

"We load quicker, haul faster and move more dirt with our Internationals than with any other crawlers."

"Our operators push 'em to the limit all day long to get the job done ahead of schedule. The tractors get clean filters, fuel and grease, and hard work—more hard work than is reasonable—and they take it month after month without a let down!"

That's what International owners everywhere are finding out. Find out for yourself. Ask your International Industrial Distributor for details.

**INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS**



JOHNNY-ON-THE-SPOT SERVICE. A fast field service team from International's Atlanta distributor rolls up to the job site. Service like this from your International distributor is as near as your nearest telephone, to cut down downtime and keep your equipment rolling!

HIGH HEAPING FOR HIGH FLYING. Here are three of the five International crawlers that are furnishing power to extend runways at Fulton County Airport to increase the field's traffic potential.





"Our Dodge trucks just go and go!"

Why new DODGE "Job-Rated" TRUCKS are a better buy for Construction Men

HIGH-POWERED FOR HEAVY HAULS!

Dodge gives you the might and muscle to move those big loads *in a hurry!* Seven hefty power plants, three brand-new—from 100 h.p. to 171 h.p. It's real economical power, too. High compression ratios, 4-ring pistons, chrome-plated top rings and a host of other features combine to help keep your gas and oil expense at rock-bottom levels. And extra-powerful dual primary brakes, in 1- through 4-ton models, assure safer stops with less pedal pressure!

BIG PAYLOADS FOR BIGGER PROFITS!

With a Dodge "Job-Rated" truck, you can haul man-sized loads on a small-sized budget! New, bigger load capacities on many models enable you to carry more money-making payload every time out. Moreover, those rugged Dodge frames, sturdy axles and extra-strong springs are built to withstand toughest use for years without breakdown. See your Dodge dealer for the full story on Dodge extra value. He's making mighty good deals right now.

... says **CHARLES BENDA**, Owner,
Chuck's Excavation Service, Chicago, Ill.

"Contract hauling and excavation work can be rough work sometimes. You never know from one day to another what your next job will be like. That's why I need trucks that can handle any kind of job that may come up. And Dodge is my choice down the line!

"That Dodge power is as steady as a mule. It has the ability to pull full loads out of deep basement excavations, and the dependability to keep coming back for more. My Dodge trucks are plenty economical, too. I haven't found any other make that can come close to Dodge for good gasoline mileage!"

DODGE

"Job-Rated" TRUCKS

LIMA

Wheel or truck mounting is available on machines of $\frac{3}{4}$ and $1\frac{1}{2}$ yards capacity.



THE ALL PURPOSE MACHINE

Here are four typical examples of the versatility of the LIMA Type 604. Realizing that most contractors bid various types of work, LIMA has gone to great lengths to make a machine that is easily converted in the field to shovel, crane, dragline or pullshovel, thus giving the owner the advantage of four machines in one.

Versatility is but one of the many advantages that make the Type 604 a leader in its class. For instance, air controlled clutches do all the work—with one slight touch of the levers, the hoist, crowd, travel

and swing clutches can be engaged or disengaged, making for ease of operation. Anti-friction bearings in the drums and other important bearing points reduce destructive friction and lessens lubrication problems. Simplicity of design results in fewer working parts and greater safety for the operator.

For further information on the Type 604, write your nearest LIMA distributor or write to Baldwin - Lima - Hamilton Corporation Construction Equipment Division, Lima, Ohio, U. S. A.

CAPACITIES: Shovels $\frac{3}{4}$ to 6 cu. yds. Cranes to 110 tons. Draglines, variable.

OFFICES IN PRINCIPAL CITIES OF THE WORLD

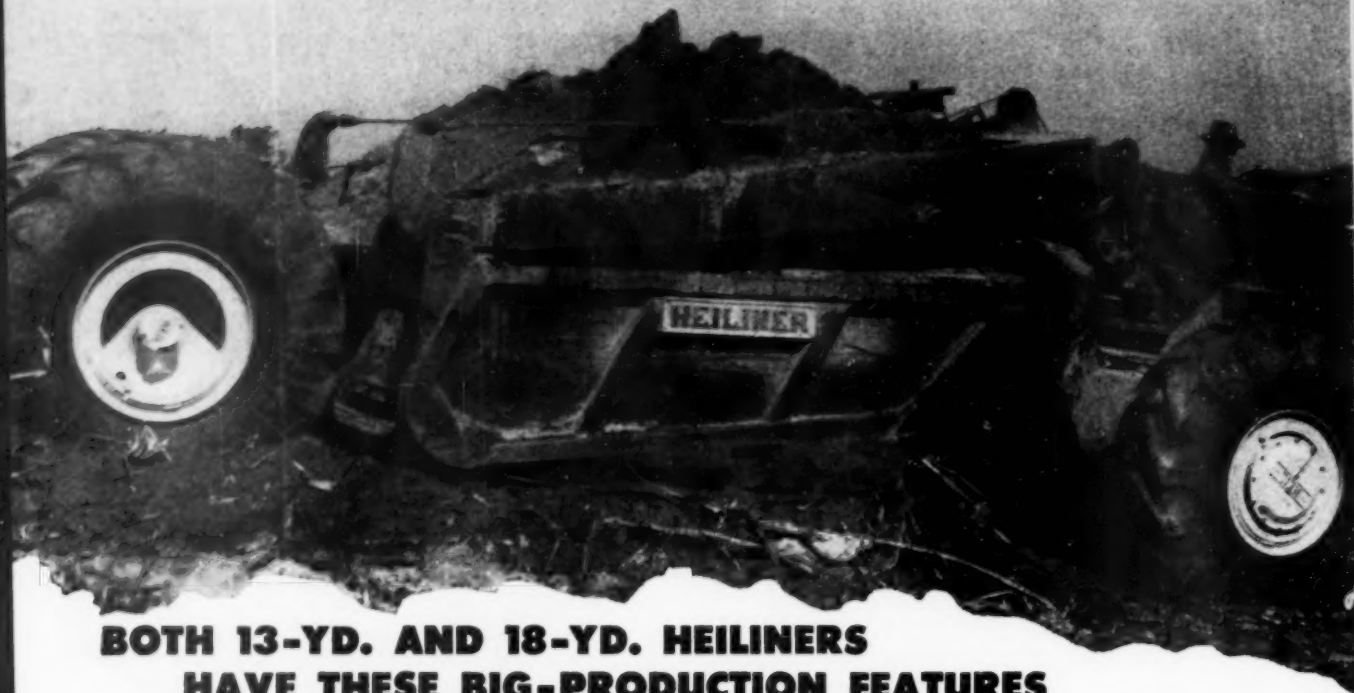
BALDWIN - LIMA - HAMILTON

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS • TRUCK CRANES
CRUSHING • WASHING AND SCREENING EQUIPMENT



When writing advertisers please mention **ROADS AND STREETS**, April, 1953

13-yd. HEILINER



BOTH 13-YD. AND 18-YD. HEILINERS HAVE THESE BIG-PRODUCTION FEATURES

● THE RIGHT POWER, PROPERLY APPLIED

Exactly right power, correctly applied at the point of action, is the Heiliner solution for greater earthmoving efficiency and production at low cost. Heiliner's "power with a purpose" *utilizes* horsepower instead of wastes it . . . and horsepower saved by more efficient design cuts costs on every phase of the cycle.

● EXCLUSIVE "TILTING FLOOR" POSITIVE FORCED EJECTION

This is the simplest type of forced ejection known. The floor of the bowl is hinged back of the cutting blade and simply tilts up to a 75° angle by means of a positive ram action. The load is forced out the wide front opening, while even the stickiest material is scoured from the sides and stationary back of the bowl. Material is dumped fast and clean. There's no leftover yardage to haul back to the pit.

● BIG PAY LOAD CAPACITY

Big pay loads mean big profit! Both 13-yd. and 18-yd. Heiliners often carry *more* than the rated capacity, and the more yards you can haul each trip, the less it costs per yard.

● "PASSENGER CAR" STEERING

Big, powerful Heiliners handle as easily as the finest car with power steering. With Heil's exclusive, patented Hydro-Steer there's no jack-knifing, no nosing, no snaking. Operators have the "feel" of every operation through the sensitive steering mechanism.

● INTERCHANGEABLE SCRAPER AND WAGON

As a double-utility investment, you can't beat the combination of Heiliner two-wheel tractor with interchangeable wagon and scraper. With a 13-yd. scraper and a 15-yd. bottom dump wagon, the 500 Heiliner does the same efficient work, on a smaller scale, performed by the 800 Heiliner's 18-yd. scraper and 20-yd. wagon.

● MANY OTHER PROFIT-BOOSTING FEATURES

For faster loading, dirt "boils" up in the *center* of the bowl, heaping front and back evenly in a short digging distance. Haul speed is a fast 25 miles per hour. Big, safe 4-wheel brakes give complete control, empty or loaded. Heil's famous planetary drive provides a low-torque drive for complete utilization of engine horsepower.

ASK YOUR HEIL DISTRIBUTOR FOR COMPLETE DETAILS OF OTHER HEILINER ADVANTAGES



13 AND 18-CU. YD. HEILINER SCRAPER 20-CU. YD. HEILINER BOTTOM DUMP WAGON 4, 9, 11 AND 14-CU. YD. TRACTOR DRAWN SCRAPER CABLE POWER CONTROL UNITS

loads and hauls 16-cu. yds. per trip!

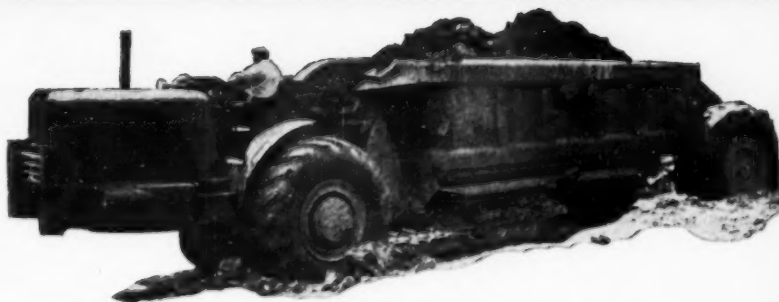
**COMPLETES 1,000-FT. CYCLE EVERY 2½ MINUTES
AVERAGES 330-CU. YDS. PER HOUR!**

Look at the heaping 16-cu. yd. load of soft topsoil in this standard 2C500 Heiliner . . . whose rated heaped capacity is 13-cu. yds./ Under these favorable conditions, this rig moved 3200-cu. yds. a day of cornfield topsoil, making a round trip of 1000-ft. every 2½ minutes . . . figures verified by work studies made at the job site. This exceptional pay load performance is piling up the profit for Coleman Construction Company of St. Albans, West Virginia. They're using three 13-yd. Heiliners to prepare the railroad site and approaches for a new plutonium diffusion plant in Ohio. The bonus pay loads and fast cycle time you get with Heiliners are your assurance of profitable production under the most difficult, as well as easy job conditions.

Double the utility of your Heiliner with an Interchangeable Bottom Dump Wagon

For roadbuilding, mine stripping, heavy construction, or any earthmoving job where big production of shovel loaded material is a factor, you can double the utility of your Heiliner 800 prime mover by using both the Heiliner scraper and the Heiliner dump wagon interchangeably. From every standpoint . . . big capacity, high operating efficiency, rugged construction, low-cost operation and maintenance . . . your investment in these easily interchangeable units will pay big dividends. You can bid confidently on more different types of work and handle them at a profit, without a big investment in other pieces of equipment.

Get complete information about Heiliner interchangeable units before you start your next contract . . . see your Heil distributor for details about Heiliner Wagons.



Heiliner 800 two-wheel tractor and 20-cu. yd. Bottom Dump Wagon. Extra heavy-duty wagon has fool-proof clam type doors which open fast and clean, with the unit moving or standing. There's no bogging down, because doors don't drop below hopper body level.

THE HEIL CO.

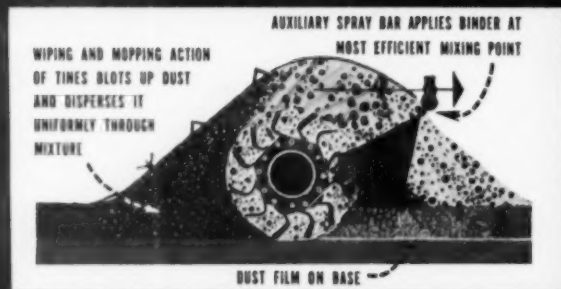
3004 WEST MONTANA STREET • MILWAUKEE 1, WISCONSIN
DEPARTMENT 443
FACTORIES: MILWAUKEE, WIS., HILLSIDE, N. J.

"IN FLIGHT" COATING BINDS AGGREGATE FASTER

... MORE FIRMLY

WITH THE

SEAMAN TRAV-L-PLANT



In the Seaman TRAV-L-PLANT a high output spray-bar applies bitumen directly into the spill-over ahead of the rotor in the mixing chamber, coating the aggregates "in-flight," while the binder is most readily mixed. (Note diagram above).

Since each particle (fine and coarse) is spinning and tumbling through the air, all surfaces are well coated by the concentrated spray. The spillover provides constant re-mixing cycles. The materials carried in the mixing chamber are further coated by rolling in contact with the binder. This "carry" also corrects variations in

aggregate gradation as the Seaman moves ahead.

The SEAMAN not only coats and mixes but also *blends* the coarse and fines so that particles of each size, from dust and chips up to the larger stone, are distributed uniformly throughout.

Crown and grade as originally established are held perfectly. The mix is ready for immediate compaction.

Investigate the Seaman TRAV-L-PLANT. See for yourself why the TRAV-L-PLANT provides a stronger pavement in less time, with less auxiliary equipment,—and therefore at far less cost.



Seaman TRAV-L-PLANT equipped with pump, volumetric meter, full tachometer assemblies and spray-bar for application of bitumen or water. Gasoline or diesel powered.

Write today for the new TRAV-L-PLANT Bulletin which completely describes the basic Seaman-mixing principle, the machine and its use. Profusely illustrated with job pictures and details of mechanical operation.

**SEAMAN
MOTORS**
Inc.

291 North 25th Street
Milwaukee, Wisconsin

5 WAYS THE



PAYS PROFITS!

The 5 features below will be found only in the Lorain-50 "Series". They are important features because each one can add profit-dollars to your jobs. Whether your job calls for crawler or rubber-tires, you can fit the Lorain-50 to your needs . . . and be sure of getting the most value for your money. Let your nearby Thew-Lorain Distributor tell you why you get . . .

MORE FOR YOUR MONEY IN THE **1 Yd.** CLASS!

1.

1-YARD SHOVEL — 30-TON CRANE (on rubber)

There's more selection in the Lorain-50 "Series" of shovels-crane. 7 different sizes and types of mountings to choose from . . . 5 front ends available. All models embody exclusive Lorain-50 design and quality features for profitable performance and long life.

2.

HYDRAULIC (fluid drive) COUPLING

The only 1-yard class machine with Hydraulic Coupling as standard equipment. No shocks, no engine stall. Reduced wear and tear even on rock work . . . smoother, more accurate crane control.

3.

AIR CONTROLS—EASIER OPERATION

Air does the work on the "50" crawler machine. Full air control of crawler steering and tread lock — air assist available for hoist, crowd and retract operations. Air steering standard on all rubber-tire models.

4.

CHOICE OF 4 CRAWLERS

The right crawler can improve performance. You can fit the "50" with a crawler to match exactly any ground or working condition. Select from standard, all-purpose, extra-long, and extra-wide crawlers.

5.

2 TYPES ON RUBBER

A big 30-ton, 30 m.p.h. Moto-Crane for big lifts and high-speed mobility. Also, available as a 30-ton, single-engine Self-Propelled crane on rubber. 4 travel speeds up to 7-1/2 m.p.h. in both directions.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN®



ON CRAWLER

(Above) A 1-yard Lorain 50-I shovel maintains a steady production pace, loading out tough quarry rock for Foster, Alder and Wright of Fayetteville, Tenn. In rock work like this, the Lorain Hydraulic Coupling puts full engine power to work. Shocks and impacts can't be transferred into mechanism or cables.

(Below) The fast stepping, 30-ton Lorain Moto-Crane, Model MC-524, is helping to build 24 piers and 4 abutments for twin bridges for the Ohio Turnpike between Peninsula and Boston, Ohio. The Horvitz Co. of Cleveland find the 30 m.p.h. mobility a money-making asset in moving to many job locations on this big road job.



ON RUBBER-TIRES

Eimco's Work Faster! Keep Job Costs Lower

Contractors, on all types of jobs, know that Eimco's will consistently save them money as an all around tool on general maintenance jobs, special repair jobs or new construction.

Take a job of loading sand or gravel. Eimco's will load from 4 to 6 yards per minute, and keep it up. This is a loading speed that invites comparison with heavier, more expensive equipment.

Eimco's are also good at digging unbroken ground for new roads, soil-silt deposits in riverbeds, taking up highway curb or shoulders, loading snow, clearing winter sluff, digging out frost blisters or digging ditches culverts or the toughest kind of rock loading.



Write for complete information on Eimcos stating your type of loading problem.

You Can't beat an Eimco

EIMCO

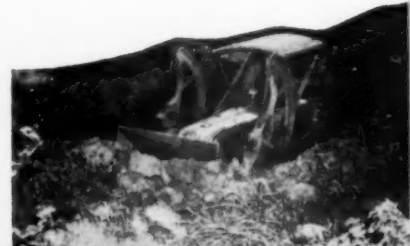
THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines
EXECUTIVE OFFICES AND FACTORIES: SALT LAKE CITY 10, UTAH, U. S. A.

BRANCH SALES AND SERVICE OFFICES

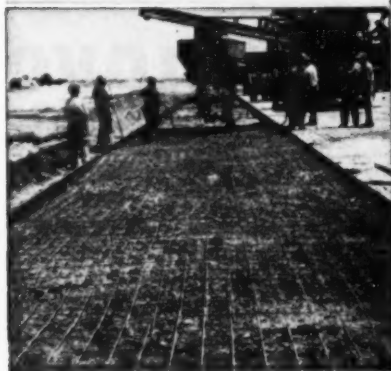
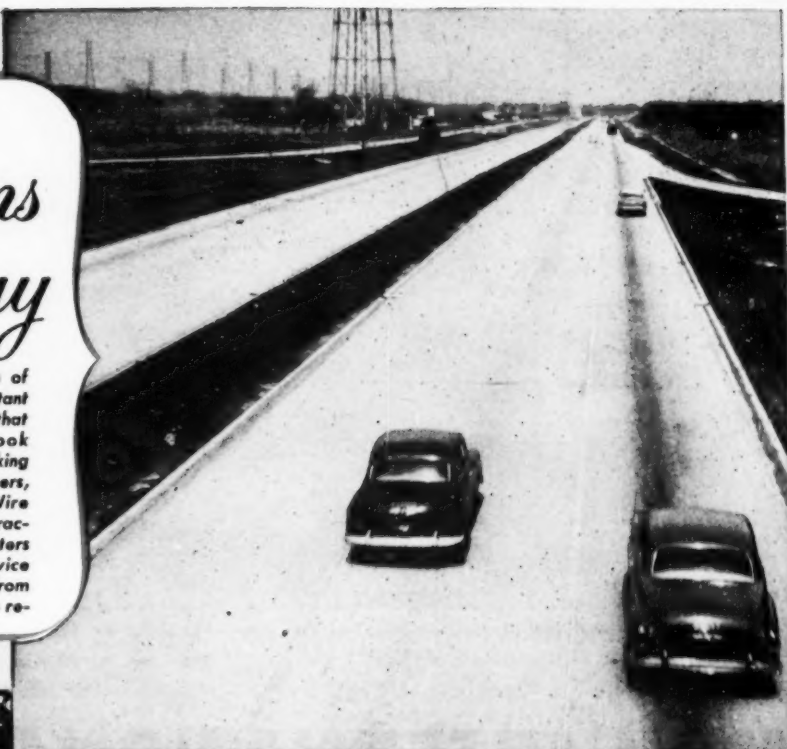
NEW YORK: 51-52 SOUTH STREET • CHICAGO: 3319 SOUTH WALLACE STREET
BIRMINGHAM, ALA.: 3180 FAYETTE AVE • DULUTH, MINN.: 216 E. SUPERIOR ST.
EL PASO, TEXAS: MILLS BUILDING • BERKELEY, CALIF.: 637 CEDAR STREET
KEEOGG, IDAHO: 307 DIVISION ST. • LONDON: W. 1, ENGLAND: 190 PICCADILLY

IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
IN ENGLAND: EIMCO, GREAT BRITAIN LTD., LEEDS 12, ENGLAND
IN ITALY: EIMCO ITALIA S.P.A., MILAN, ITALY

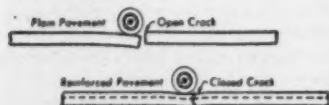


The Edens Expressway

Shown here is a typical section of the Edens Expressway, an important part of the highway network that serves the Chicago area. Cook County highway engineers, working with Illinois State highway engineers, specified American Welded Wire Fabric reinforcement with contraction joint spaces of 100'-0" centers to insure long, trouble-free service and a smooth riding surface from this main traffic artery—and also reduced construction costs.



IDEAL FOR USE with modern paving machinery, American Welded Wire Fabric is also generally preferred for concrete reinforcement in city streets, curbs, sidewalks and sewers—in culverts, abutments and bridges—in foundations, yards, floors, walls and roofs of all sorts of buildings.



AS THE WHEEL LOAD approaches an open crack in plain pavement, one slab end carries the entire load. As the wheel approaches the closed crack in pavement reinforced with American Welded Wire Fabric, both slab ends, instead of one, carry the load, preventing damage to the slab and to the subgrade, reducing the rate of cracking, preventing heaving and spalling, which reduces maintenance cost and increases the service life of the highway.



EVERY TYPE OF REINFORCED CONCRETE CONSTRUCTION NEEDS

U.S.S. AMERICAN WELDED WIRE FABRIC

UNITED STATES STEEL

built stronger, to last longer and to ride smoother with AMERICAN WELDED WIRE FABRIC

ON many a mile of the Nation's highway system, American Welded Wire Fabric has helped to improve driving conditions, reduce construction costs and save important money on maintenance—and very important, it protects the public's investment through longer pavement life.

With American Welded Wire Fabric, the many small high-yield steel members keep the driving surface smooth and even, make possible longer slabs and fewer joints, hence increase riding comfort and safety.

The big flat sheets are easily placed by minimum crews, lie flat and stay put during pouring. Higher allowable stresses mean that you use less steel, less concrete. The result is—savings

on materials and labor that sharply reduce construction costs.

Long experience has proved that American Welded Wire Fabric reinforcement reduces the rate of cracking, prevents progressive damage to slab and subgrade, insures additional years of trouble-free service, thus cutting maintenance costs to the bone.

Our specialists will be glad to consult with you on your individual reinforcing problems. You will find that most jobs can be handled with some of the many standard designs, styles and sizes of American Welded Wire Fabric that are now readily available. Why not drop a line to our nearest sales office for a copy of the American Welded Wire Fabric Catalog.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



New International R-184 LOADSTAR with dump body. Features the entirely new 130 H.P. "Black Diamond 282" engine. GVW rating 21,500 lbs.

NEW INTERNATIONAL TRUCKS

BUILT as only IH can build them

The 168 basic New International models embody the engineering principles, used in International's continuing program of truck research and development, that have resulted in hundreds of exclusive International features that have meant greater profits for truck buyers.

PROVED as only IH can prove them

The 307 features in the New International Truck line have been proved in the world's most advanced Truck Engineering Laboratory; proved again at International Harvester's 4000-acre desert Proving Ground at Phoenix, Arizona.

VALUE only IH can give you

The New International Trucks offer an unmatched combination of values—the right truck for the job,

unequalled performance, lowest maintenance and operating costs, maximum driver comfort.

Now—the features you want— in America's most complete truck line

New International styling identified by the IH emblem . . . Exactly the right power for every job. First truck builder to offer choice of gasoline or LP gas with Underwriters' Laboratories listing in 1½-ton sizes and other models . . . Designed by drivers for drivers. Comfo-Vision cab with one-piece Sweepstake windshield. New comfort and interior styling . . . Steel-flex frames proved best in the field . . . Transmissions to meet any operating requirement . . . 296 Wheelbases ranging from 102 inches up . . . Easy starting and greater fuel economy . . . Wide range of axle ratios for all models . . . Real steering comfort and control . . . Sizes from ½-ton to 90,000 lbs. GVW rating. Now—See The New IH-Built, IH-Proved International Trucks at your nearest International Dealer or Branch.

INTERNATIONAL HARVESTER COMPANY • CHICAGO



International Harvester Builds McCormick Farm Equipment and Farmall Tractors... Motor Trucks... Industrial Power... Refrigerators and Freezers

Better roads mean a better America

INTERNATIONAL TRUCKS

Standard of the Highway

Balanced Design...

ONE REASON WHY **BUCYRUS-ERIE** BLADES CUT ROADBUILDING COSTS

WHAT BALANCED DESIGN IS ... Bucyrus-Erie bulldozers and Bullgraders are mounted on International TD-14A and TD-18A tractors so that the vital balance point of the tractor remains virtually unchanged.

WHAT IT DOES ... It means that the tractor retains all of its original tractive effort and maneuverability. It puts maximum driving force where it belongs—at the blade. Because there is always a full length of track on the ground, you take full advantage of tractor power and get fine, accurate control over the blade. Finally, there is less wear and tear on the tractor.

HOW IT CUTS ROADBUILDING COSTS ... Better blade control and tractor maneuverability enables operator to produce accurate grading and fine finishing in a minimum of passes—you *save time*. Having the advantage of full tractor power lets you move more dirt on every pass and get the job done faster—you *save money*. Since there is no waste of tractor power, you *save fuel costs*. And lastly, because there's no upset of balance to strain the tractor there's less wear on tractor parts—you *save maintenance costs*.

Investigate these and the many other features offered in Bucyrus-Erie blade attachments. Get the complete story from your International Industrial Tractor Distributor today. 7153

BUCYRUS-ERIE COMPANY, South Milwaukee, Wisconsin



TD-14A and TD-18A Bullgraders and Bulldozers Hydraulic or Cable Controlled

SEE YOUR INTERNATIONAL INDUSTRIAL TRACTOR DISTRIBUTOR

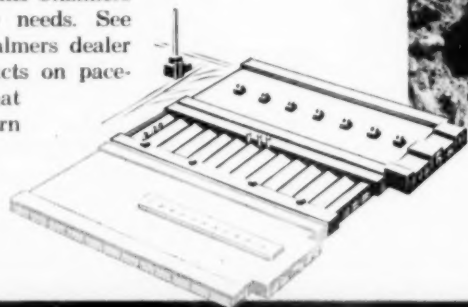
There's more to tractors than meets the eye . . .

The real "pay-off" value of any tractor to its owner is how it measures up to the standards set by today's modern production methods.

To meet these needs, Allis-Chalmers started from scratch and built a line of tractors with a future. Thousands now have been tested and proved on the toughest proving ground of them all, actual jobs, and they have more than measured up to expectations. Owners have found that these tractors set new standards of performance . . . that they give greater output with less down time . . . plus more profit, whether pulling, pushing, digging or dozing. Operators have discovered new ease and comfort in operation, too; and mechanics say these are the easiest-to-service tractors that they have ever worked on.

Yes, the "family circle" of users of Allis-Chalmers tractors is growing constantly. Many users who bought their first Allis-Chalmers tractor only a few years ago now have fleets of them, and many others who operate only one or two tractors have become Allis-Chalmers boosters.

This acceptance is the springboard behind a big plant expansion at Springfield, Illinois, which will enable Allis-Chalmers to meet *your* future needs. See your nearby Allis-Chalmers dealer now for the inside facts on pace-setting tractors that measure up to modern production methods.

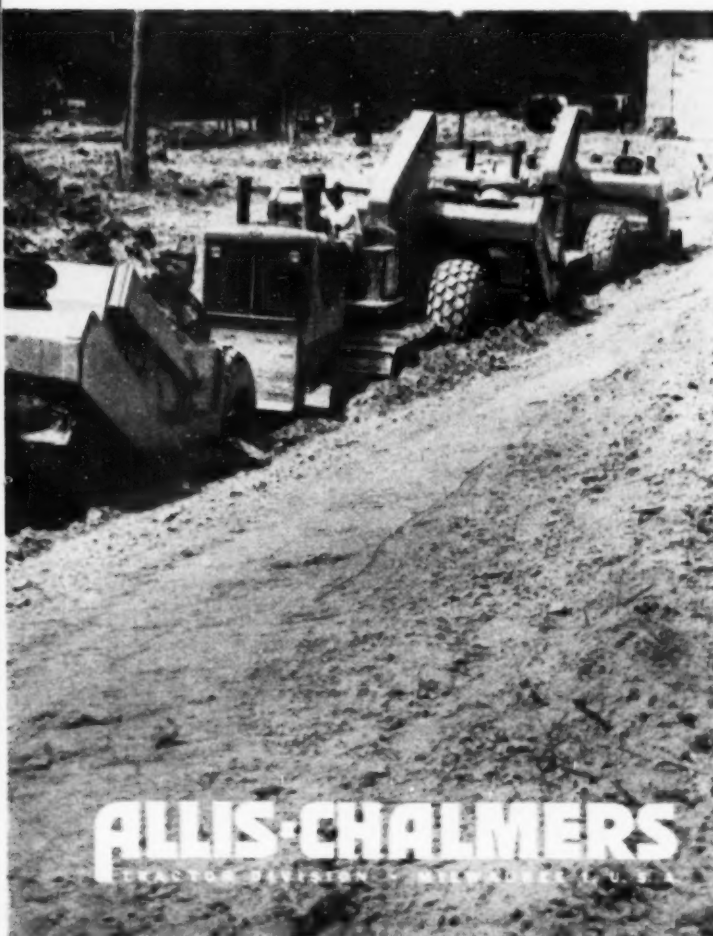




▲ From haul road to highway to heavy construction . . . wherever big production is essential to the job, this big HD-15 has more than proved its worth. With 109 drawbar hp. and 27,850 lb. weight, it works quickly, efficiently as a dozer, tractor-shovel, puller or pusher.

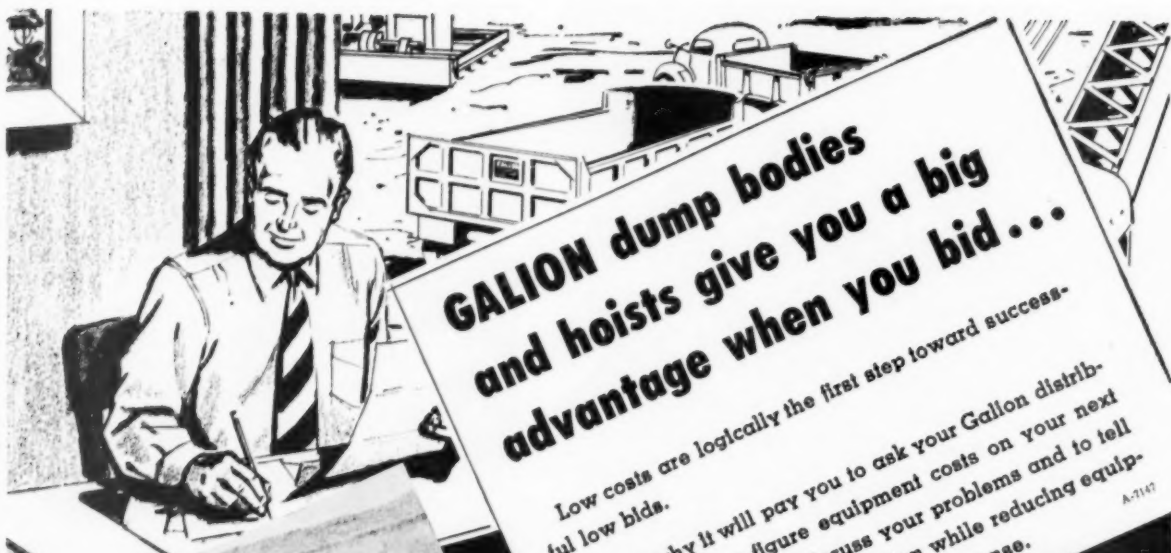


▲ This 72 drawbar hp., 18,800-lb. HD-9 is making friends in every field because its power and weight make it ideal for dozens of today's jobs. And, operators can gain up to 25 percent more production on short dozing jobs because they can go from any forward to any reverse speed with just one shift.



▲ The 40 drawbar hp., 11,250-lb. HD-5 is a versatile jack-of-all-trades for fleet owners as well as one-man operations . . . with hydraulically controlled Tracto-Shovel, it's equally useful loading bulk materials, dozing, digging basements, dozens of other jobs.

◀ Here's real tractor teamwork . . . four HD-20's in a "train" — three pulling scrapers, one pushing — all working together for big production. With torque converter drive, they synchronize speeds at contact . . . automatically load at the fastest speed that job conditions permit, with less strain on operators and equipment. With 175 engine hp. and 41,000 lb. weight, the HD-20 is today's new yardstick of crawler tractor performance.



GALION dump bodies and hoists give you a big advantage when you bid...

Low costs are logically the first step toward successful low bids.

That's why it will pay you to ask your Galion distributor to help you figure equipment costs on your next bid. He'll be glad to discuss your problems and to tell you how to speed up production while reducing equipment investments and operating expense.

A-7147



In the pit or on the road, Galion's perfectly balanced bodies move easier and faster... provide the utmost in Action-Balance-Construction.

other
typical
GALION
products



Mighty-Mite twin cylinder hoist



Standard hydraulic hoists and bodies



Telescopic hoists and trailer bodies



Heavy duty hydraulic hoists and bodies



Gravity Roll-Over bodies



Galions are built to withstand the shock of sudden, extra heavy loads from power shovels.



Galion's Model 12 contractor bodies are familiar sights on big construction projects... where schedules are directly dependent upon equipment reliability.

THE



GALION

ALLSTEEL BODY COMPANY • GALION, OHIO



you've got to
Swing that Rear-End
for TOP performance

Top performance, no matter what the footing . . . no matter what the job.

When a ditch is wet, rear steer places the rear truck on the shoulder where the going is good.

When the load is heavy, rear steer places the rear drivers so that they push behind the toe of the blade, while the front drivers pull ahead of the heel. More material is moved, farther and faster.

When there's finishing to be done, rear steer moves the rear wheels off to the side where they won't leave tire marks.

Yes, on job after job, right straight through the year, you've got to SWING THAT REAR-END to get maximum results, and only an Austin-Western Power Grader can swing its rear-end.

**GRADING
SLOPES**



**MOVING
WINDROWS**



**FINISHING
SLOPES AND
SHOULDERS**



**MIXING
BLACKTOP**



*...handling
many other jobs*

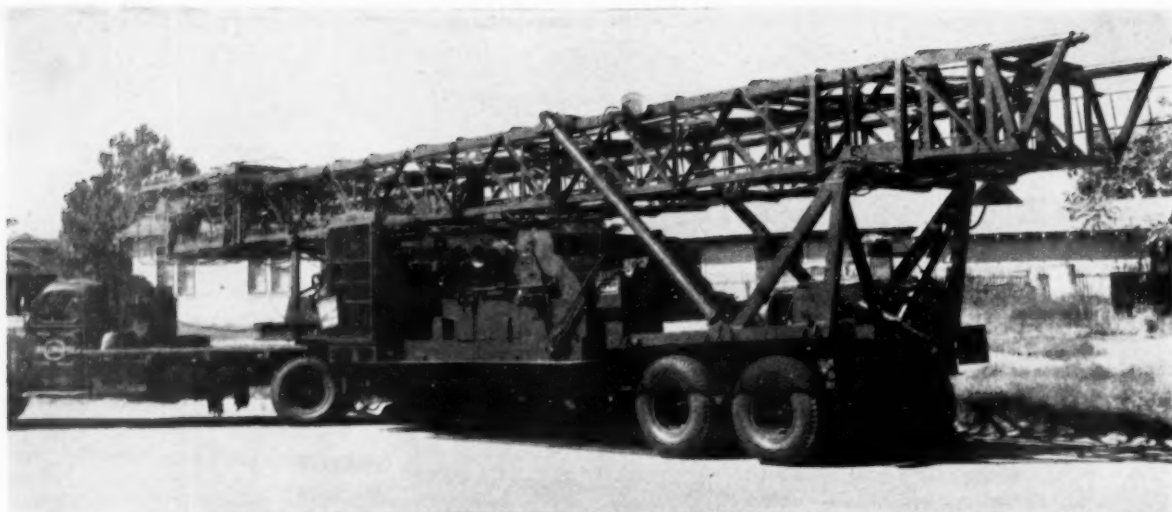
Austin-Western

**Power Graders
Road Rollers • Motor Sweepers**



Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
 Subsidiary of Baldwin-Lima-Hamilton Corporation
 AURORA, ILLINOIS, U.S.A.



Dorsey Low Beds prove their strength on **tough assignment**

— take terrific punishment as "foundation" for swaying oil field rigs

The stress and strain imposed by a swaying, pounding oil well servicing rig taxes the strength of any foundation — but in this case the "foundation" is a 35 ton Dorsey low bed trailer!

The rig weighs 30 tons, but when working in upright position the side stress on the trailer is multiplied. For the extra strength demanded for such a job, the Wilson Manufacturing Company of Wichita Falls, Tex., uses many Dorseys as mountings for their Mogul and Giant Rigs and Fabricated Masts.

Mr. Aubrey A. Wilson writes: "We have found Dorseys to be carefully designed, well built and capable of withstanding oilfield strains and stresses. We have one customer, Mr. Fred Hintz of Dickenson, Texas, who has just taken delivery of his third rig with Dorsey mounting."

Few construction assignments can punish a low bed like this! The portable mast imposes heavy side strain with each movement of the rotary drilling rig—dramatic proof of the extra strength you get when you specify Dorsey!

FOR YOUR TOUGH HAULING ASSIGNMENTS, THE WISE CHOICE IS DORSEY



DORSEY TRAILERS, ELBA, ALABAMA

BAKER announces a completely **NEW** Power Control Unit

BAKER PCU-75

FOR THE OPERATOR—easier, more positive control with greater accuracy at all speeds.

FOR THE OWNER—longer operating life with less maintenance.

FOR THE SERVICE MAN—quick, simple adjustments—easy to clean and lubricate

CHECK THESE FEATURES

NEW Multiple Disc Clutch—smoother operating, longer lasting with *higher capacity* than any other type of clutch. Adjustments are more permanent. Shorter lever travel—only 5"—reduces operator fatigue.

NEW Adjustable Hand Levers—quickly adjusted by operator for *length, angular position, and height*. New, horizontal swing-action lightens hand load.

NEW Improved Brakes—faster on-and-off, easier to control. Single-point adjustment. Rugged, simplified design increases both efficiency and wear life.

NEW Sheave Mountings—upper reeving sheaves pivoted same as lower fairleads and mount-on anti-friction bearings to provide more uniform cable-winding.

NEW Streamlined Design—more compact, fewer obstructions. Clutches completely enclosed to keep out dirt, grit, moisture.

THE BAKER MANUFACTURING COMPANY Springfield, Illinois

Stop in at your local Baker, A-C Dealer today—get full details on the new Baker Power Control Unit No. 75—or write direct to The Baker Manufacturing Company, Springfield, Illinois.

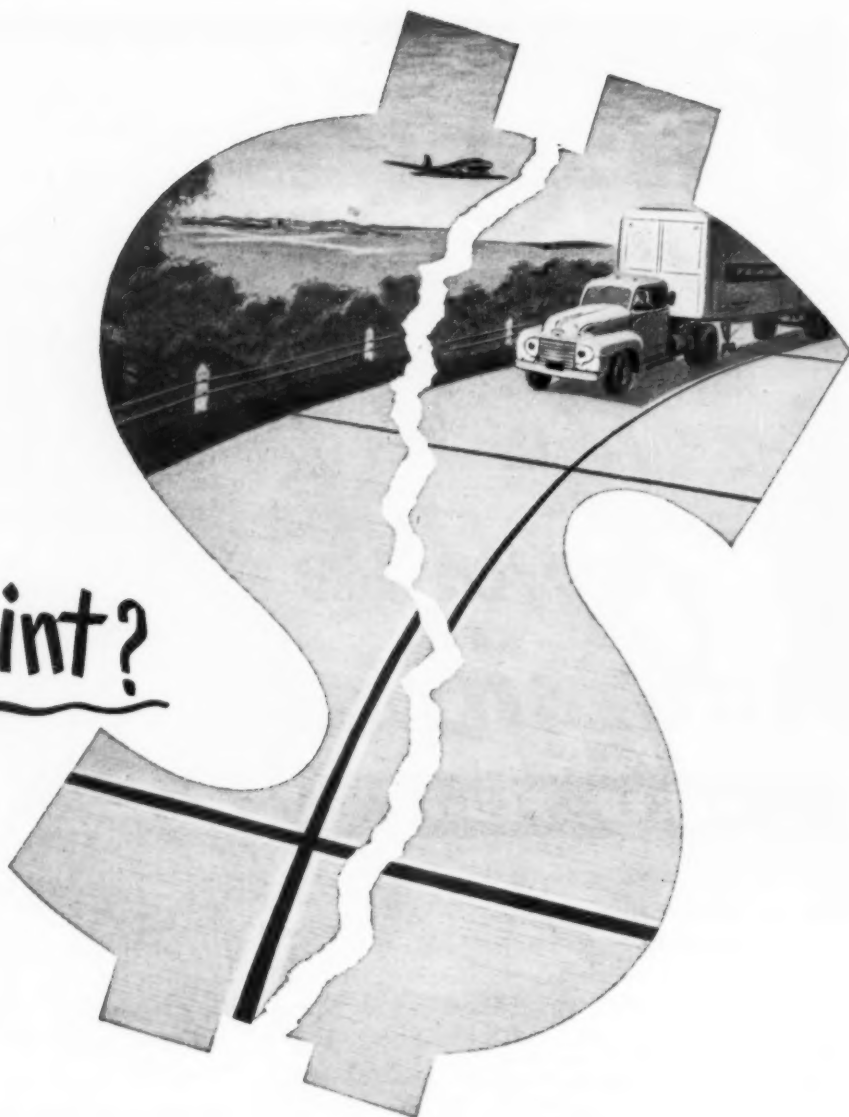


Always look to Baker for the Next Advancement—FIRST

When writing advertisers please mention ROADS AND STREETS, April, 1953

Are your
maintenance
costs

Out of joint?



Joint-sealing every year costs too much money . . . cuts deep into maintenance budgets. Put *one* application of FLINTSEAL* in your concrete pavement joints . . . and then forget those joints for years!

Unlike the old types of bituminous fillers which crack and leak in cold and flow and smear in heat, rubber-asphalt Flintseal stays put . . . remains extensible and compressible through expansion and contraction of the pavement slabs.

Seals out water—*positively* . . . yet is flexible and resilient . . . bonds to joint walls perfectly!

So don't take chances! Look at savings over the years by using Flintseal. Write for complete data. *Reg. U. S. Pat. Off.

THE FLINTKOTE COMPANY, Industrial Products Division, 30 Rockefeller Plaza, New York 20, N.Y.—55th & Alameda Sts., Los Angeles 54, Calif.

In Toronto, Ontario: THE FLINTKOTE COMPANY OF CANADA, LTD.

In London, England: Industrial Asphalts Company, Ltd.

For airports: Flintseal JFR (jet fuel resistant) is used to seal joints in airfield runways, taxiways, aprons and hangar floors.

**Specialized Experience—
Over 50 Years At Your Service—**
by phone, mail or personal call...
no obligation.



Flintseal
HOT-POURED
JOINT-SEALING COMPOUND





the year's
**BIGGEST
SCOOP**

Photo Courtesy Mixermobile Manufacturers, Portland, Oregon

180 horsepower Scoopmobile loads 4319 yards of wet sand in 31 hours!

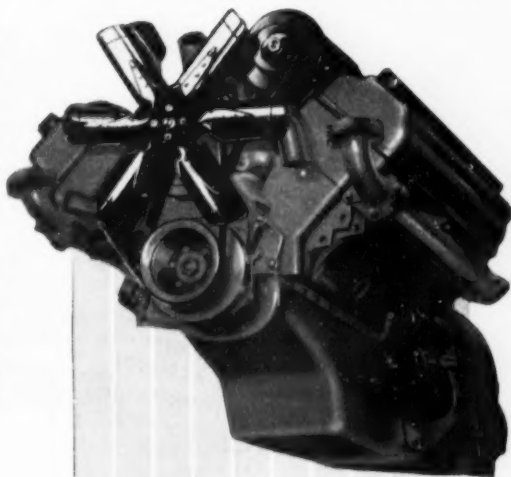
No stranger to hard work, this loader. Each time it bends down, a hydraulically operated loading bucket picks up, carries and loads as much as two cubic yards of dirt, rock or sand. Four-wheel planetary gear drive and four-wheel power steering are combined for plenty of power, amazing speed and maneuverability. Five-speed transmission enables top performance under any conditions of terrain.

Like others, this manufacturer powers with Chrysler because he *knows* every Chrysler Engine is engineered for long-lived, top-profit performance. He selected the husky Model 20 Chrysler V-8

Industrial Engine. Result: *more work in less time.*

Chrysler can equip its 180 horsepower Model 20, or any of its Industrial Engines, to meet special requirements. For example, Chrysler can supply engines with propane or natural-gas burning carburetor, gýrol Fluid Coupling or torque converter.

Chrysler Industrial Power is not expensive. Production-line methods adapted to specialized engine building provide a custom-built engine at mass-production prices. See a Chrysler Industrial Engine Dealer or write: **Department 124, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.**



CHRYSLER

Industrial Engines

HORSEPOWER



WITH A PEDIGREE



LOOK JOE! SAW SMOOTH — STRAIGHT OPENINGS
for PATCHES & TRENCHES with a . . .
SAVE TIME — MATERIAL — MONEY by
"SAWING BEFORE BREAKING" with a . . .

Clipper
CONSAW

MODEL
C-130
ONE OF 8
MODELS, GAS
OR ELECTRIC
POWERED

Save up to 50% in labor and material. Saw repair patches — water, gas, sewer and air line trenches in floors, streets, walks and highways. Save too, by sawing contraction joints in floors and highways . . . eliminate costly hand forming and spalling.

"4 OUT OF 5" BUY CLIPPER CONCRETE SAWS. Three-Point Suspension (see below) . . . the Patented Water Application which increases blade life and speed . . . perfect balance and dashboard controls for operating ease and maneuverability — these are the reasons WHY — "4 OUT OF 5" Buy Clipper!

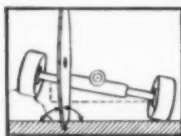
NEARLY 20 YEARS EXPERIENCE Sawing Concrete of All Types

The unqualified Clipper guarantee of satisfaction is backed by world-wide experience, the ability to select the finest materials and the "know-how" to put them together.



YOU CAN DEPEND ON CLIPPER SUPERIOR DIAMOND BLADES

. . . guaranteed to . . . "Provide the fastest cut . . . at the lowest cost." Clipper alone can supply every necessary metal bond . . . in over 36 specifications.



THREE POINT "No-Bind" SUSPENSION

Three Point Suspension holds the blade straight and true in the cut — **eliminates** binding — drifting — sidewear and friction. Guarantees the **longest possible blade life!**

FREE TRIAL!

ORDER TODAY . . . on FREE TRIAL. Discover for yourself how Clipper will increase your profits by increasing your production at reduced costs. Clipper "ON THE JOB" FREE TRIAL guarantees satisfaction at no obligation.

CLIPPER MASONRY SAW

. . . the ONLY saw in the world that will cut masonry materials of every size and description. Clipper outperforms them all for ONLY Clipper is "CONVERTIBLE" and has the Patented Features for flexibility. A Clipper Model to fit any job — any budget. Sold on FREE TRIAL. . . . Priced from \$265.



MODEL NO.
15 MODELS
PRICED FROM \$265



**SAME DAY SERVICE
FROM YOUR NEAREST
FACTORY BRANCH —**

• PHILADELPHIA
• ST. LOUIS
• CLEVELAND
• DETROIT
• AUSTIN, TEX.
• CHICAGO
• LOS ANGELES

• BOSTON
• HOUSTON
• MILWAUKEE
• ST. PAUL
• INDIANAPOLIS
• NEW YORK
• PITTSBURGH
• DENVER

• SAN FRANCISCO
• CINCINNATI
• ATLANTA
• WASHINGTON, D.C.
• BIRMINGHAM
• CHARLOTTE, N.C.
• DALLAS
• KANSAS CITY

IN CANADA — P.O. BOX 476, WINDSOR, ONTARIO

SOLD ONLY DIRECT FROM FACTORY BRANCHES

Clipper

**KANSAS CITY 8, MISSOURI
COAST TO COAST**

MAIL
COUPON
NOW

CLIPPER MANUFACTURING CO.

2820 E. WARWICK • KANSAS CITY 8, MO.
Send FREE Literature and Prices on:

☐ CLIPPER CONSAWS ☐ CONSAW
DEMONSTRATION
☐ CLIPPER
MASONRY SAWS ☐ CLIPPER
DIAMOND BLADES
No. 13-C

COMPANY _____
ADDRESS _____
CITY _____ STATE _____

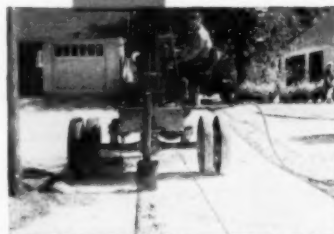


Joe! Stop excessive
breakout and high cost

Only minimum replacement material
needed and is poured to straight,
smooth edges.



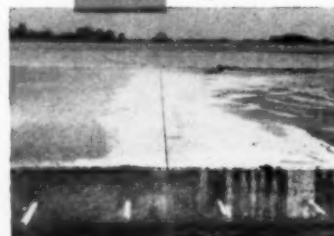
Sawed lines confine breakout frac-
turing and speeds removal up to 50%.



Joe! Stop radial frac-
turing and excessive costs



Contraction joints in floors or streets
eliminates spalling, 50% less seal and
are maintenance-free.



Joe! End slow, costly
hand forming, spalling



THERE'S A CLIPPER FACTORY BRANCH NEAR YOU

don't let

HEAT

RUIN YOUR FLYWHEELS AND PRESSURE PLATES

Velvetouch



Install Velvetouch Matched Facing Sets

Whether you're having trouble with the master facings on your tractors or the clutches in your trucks, you'll find Velvetouch Matched Facing Sets keep equipment out of the repair shop and on the job. Because Velvetouch gives you **FOUR** controlled friction surfaces instead of two... gives you positive protection against heat-checked flywheels and pressure plates!

In addition, Velvetouch Matched Facing Sets insure increased clutch capacity, for they **DOUBLE** the controlled friction area you get with conventional plates. And with Velvetouch, you can reclaim old flywheels and pressure plates that have already been heat-damaged, and put them back into service... better than ever!

Detailed literature available now. For further facts about Velvetouch Matched Facing Sets... see your supplier, call our nearest branch, or write us direct.

THE S. K. WELLMAN CO. • 200 EGBERT RD. • BEDFORD, OHIO

THE S. K. WELLMAN CO. SALES OFFICES AND WAREHOUSES

* ATLANTA — 119 14th St., N. E.,
Atlanta 5, Georgia

* CHICAGO — 1500 South Western
Ave., Chicago 8, Illinois

* CLEVELAND — 290 Egbert Rd.,
Bedford, Ohio

* DALLAS — 3407 Main Street,
Dallas 1, Texas

** DETROIT — 16822 James
Couzens Highway,
Detroit 21, Mich.

* LOS ANGELES — 1110 South
Hope St., Los Angeles 15, Cal.

* PHILADELPHIA — 1545 West
Belmont Ave., Philadelphia
41, Pa.

* PORTLAND — 636 N. W. 16th
Ave., Portland 9, Oregon

* SAN FRANCISCO — 424 Bryant
Street, San Francisco 7, Calif.

* TORONTO, ONTARIO — The
S. K. Wellman Co. of Canada,
Ltd., 2839 Dufferin St.

** WASHINGTON — 1101 Vermont
Ave., N. W.,
Washington 5, D. C.

** EXPORT DEPARTMENT — 8 South Michigan Ave., Chicago 3, Illinois

* SALES OFFICE AND WAREHOUSE

** SALES OFFICE

- Gets Jobs
Done in
"BIG
GRADER"
Style!

GALION 503

Tandem Drive ECONOMY GRADER

- At a New
Low in
FIRST COST
and
OPERATING
COST!

Performance-Boosting FEATURES

- Positive, 4-wheel tandem drive.
- Hydraulic controls.
- High-clearance front axle.
- Box-type, high-arched frame.
- Gasoline engine - 40 h.p.
- Four forward speeds, 2.3 to 20.4 m.p.h.; high reverse 4.3 m.p.h.
- Weight - 8720 lbs. (without extras).
- Front tires 6.00-20, rear tires 7.50-20; larger sizes available.
- Loader, Windrow Eliminator, "V" Snow Plow, and Bulldozer available.

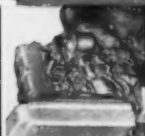
Write for literature.



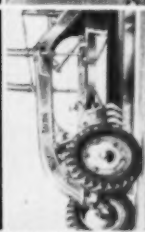
STAND-UP HEIGHT
REMOVABLE CAB



36.7 H.P.
DIESEL ENGINE



HYDRAULIC SCARIFIER
LOCATED "UP FRONT"



LEANING
FRONT WHEELS



HYDRAULIC
SHIFTABLE MOLDBOARD



THESE
FEATURES ARE
AVAILABLE AS
"EXTRAS"

ESTABLISHED
GALION
1901

THE GALION IRON WORKS & MFG. CO., General and Export Offices, Galion, Ohio, U.S.A.

Cable address: GALIONIRON, Galion, Ohio

BIG production at Lowest Cost



Two Model 54 Wood Roadmixers operating simultaneously on parallel windrows while mixing cement-treated base for a superhighway.

Model 54 WOOD Roadmixer



WOOD Spreader Box
Attached in 30 seconds to a dump truck, the Wood Spreader Box measures and forms materials into accurately proportioned windrows as the truck moves along. Windrow capacities of 2 to 8 cu. ft. are quickly and easily controlled by adjustable tailgate. The Wood Spreader Box eliminates guesswork in measuring imported materials placed on sub-grades or bases.

On those big stabilization jobs where quantity production is a paramount factor, there isn't a piece of equipment equal to the Model 54 Wood Roadmixer. In speed, capacity and quality of paving, it's the "Blue Ox" of all mix-in-place mixers — the acknowledged pace setter for stabilization construction.

Tractor-pulled and tractor-powered, it will turn out 350 tons per hour plus — all day long. It is a complete traveling mixing plant. Regardless of materials or binders, you get **lowest cost** per square yard or per ton with a Model 54 Wood Roadmixer.

Bid those **big** jobs. Use a Model 54 Wood Roadmixer for **on-time** production and highest quality paving. See your nearest Wood distributor or write us direct for complete information and prices on the Model 54 Wood Roadmixer. Also available are the Models 36 and 42 for small and medium jobs, and the Wood Preparer, Windrow Proportioner, Spreader Box and Tank Trailers.

WOOD MANUFACTURING CO.

BOX 620 • 6900 Tujunga Avenue
North Hollywood, California

Export Offices: 3938 Wilshire Blvd., Los Angeles 5, California • Cable Address: Woodor

When writing advertisers please mention **ROADS AND STREETS**, April, 1953

45

BLACKHAWK

Trench Hog

A LOW COST, MOBILE
VERSATILE, TRENCHER

A Ford or Ferguson tractor mounted, versatile, small trencher with big trencher performance, digs up to 800' per hour, with wide range of depths and widths—up to 7' deep, 20" wide. One man and a Trench Hog do the work of 40 hand laborers. Ideal for builders, plumbers, electrical contractors, utilities, municipalities and pipeline contractors.

- Depths accurately controlled, hydraulically.
- Cutters furnished in 6" to 20" widths. Easily changed to suit the job. Special cutters for tough soils and frozen ground.
- Optional equipment includes one side dirt delivery attachment to deposit spoil on either right or left side of trench.
- Crumbers available to provide clean, smooth, accurate trench bottom.
- Choice of 7 digging speeds.
- Independent wheel control for straighter line trenching and turning corners.
- Boom raises upward about 90° for transport.
- 4' bulldozer available for backfilling.

THOUSANDS IN USE—EVERYWHERE



ARPS
CORPORATION

DEPT. R NEW HOLSTEIN, WIS.

PRODUCTS FOR BETTER FARMS,
BETTER INDUSTRIES SINCE 1920

RUEMELIN

BLAST GENERATORS

FOR CLEANING BRIDGES—
WATER TOWERS—STRUCTURAL STEEL



Many contractors use Ruemelin Blast Generators for cleaning steel work to remove rust, paint and scale before repainting. These machines are also used to remove laitance from cement wherever concrete construction is in progress. A wet adapting nozzle can be furnished to convert dry machines to wet type of operation. Built in several sizes.

Write for
Bulletin 36-C

**RUEMELIN
MFG. CO.**

3990 N. Palmer St.
Milwaukee 12, Wis.

Manufacturers
and Engineers
SAND BLAST AND
DUST COLLECTING
EQUIPMENT
WELDING FUME
COLLECTORS

Million Dollar Remodeling Complete Now!

Hotel
Maryland

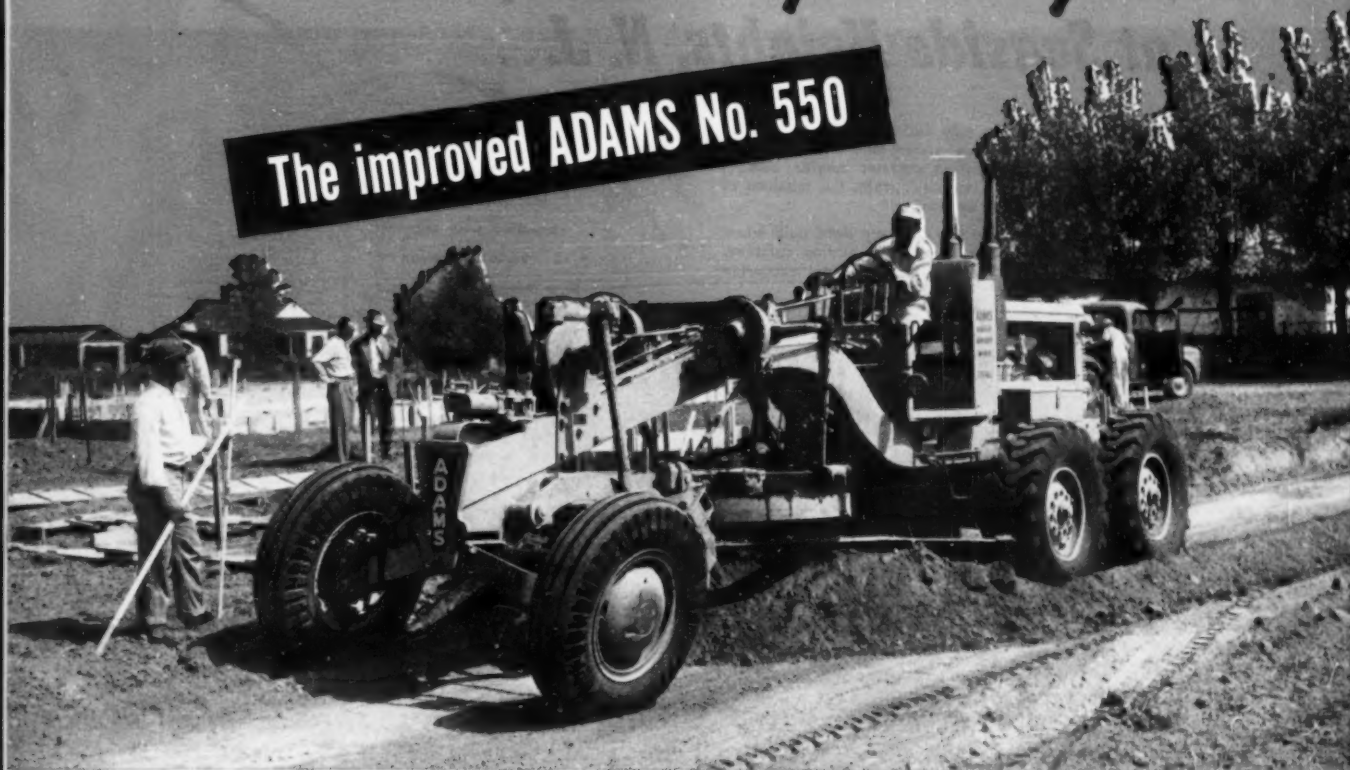
RUSH STREET AT DELAWARE
In the center of the
near north side gaiety—
surrounded by theatres,
restaurants and supper
clubs. Only one block
from Michigan Avenue.
Five minutes to Loop.
Ample parking.
300 ROOMS ALL WITH BATH
from \$3 daily
RESTAURANT AND
DINING ROOM
CLOISTER INN
ENTERTAINMENT NIGHTLY
Special attention to reserva-
tions. Write Mr Leigh,
Hotel Maryland, 900 North
Rush St. Phone Superior
7-4568.

Chicago

DINING
DANCING
SHOPPING
THEATRES
BUSINESS

Headed for New Popularity

The improved ADAMS No. 550



A Heavy-Duty 100 H.P. Grader with New Constant-Mesh Transmission

You have only to check the new and improved features that characterize the Adams No. 550 Motor Grader to know that here is one of the most efficient and versatile machines you can possibly own:

● **Powerful Diesel Engine:** Lots of lugging ability—easy to start—economical, dependable . . . Rubber mounted for vibration-free operation.

NEW Constant-Mesh Transmission: Quick, easy gear shifts . . . Helical gears—all on roller bearings—insure smooth, long-life performance . . . Finest transmission ever put into a motor grader.

● **8 Forward Speeds:** More working speeds and a higher travel speed (25 mph) than other graders . . . Save time—increase work production.

NEW 4 Reverse Speeds: Up to 13.2 mph . . . Speed work on many jobs—backing between forms, bucking snow, etc.

NEW "Creeper" Gears: Optional in transmission at nominal cost . . . Provide 3 extra-low speeds—.22 to 1.76 mph . . . Valuable where slow-speed operation is desirable.

● **Positive, Easy-Working Controls:** Dependable, accurate adjustments—easy, natural steering.

● **Big, Comfortable Cab:** Roomy convenience for maximum operator efficiency—2-way adjustable seat.

NEW Double-Action Braking System: Operates on wheels and transmission—quick, safe stops with less pedal effort.

NEW Foot Accelerator: Drive grader like truck—great in traffic. Use it or hand throttle when working.

Discover how the new No. 550 will step up production and cut costs for you. See your local Adams dealer.

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, INDIANA

*Make your next
motor grader an*



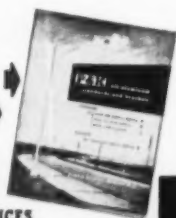
the PFAFF & KENDALL story at Seaside Heights, N. J....

With the rolling Atlantic on one side and picturesque Barnegat Bay on the other, it's no wonder this quarter-mile wide peninsula is so popular with vacationists during summer months. Sun... and sea air heavy with salt and iodine... calm the tensions of thousands of city dwellers every season!

But calm becomes calamity to the ordinary light pole when salt, iodine, high winter winds and frequent storms combine. Damage, maintenance and replacement costs become excessive... needlessly!

The P & K installation three years ago along the Barnegat Bay Bridge area has required not one penny's worth of maintenance! The P & K All-Aluminum Standards and Brackets are in good condition and appearance... despite the hurricane of November, 1950, which struck with great severity along the Atlantic Coast.

WRITE FOR
LATEST P & K
CATALOG...
AND USE
THE P & K
PLANNING AND
ADVISORY SERVICES
WITHOUT OBLIGATION



Pfaff & Kendall

84 Foundry Street
Newark 5, New Jersey

P & K All-Aluminum
lighting standards and
brackets, 30 ft. high,
installed with mercury
vapor luminaires on
New Jersey seacoast Route
37, Seaside Heights, N. J.



WELLMAN *Williams Type*

FAST BUCKET OPENING SPEEDS OPERATIONS

- Double-hinge construction on Wellman's multiple-rope bucket permits faster opening than a single hinge. This speeds up operations, also gives a bigger spread in the open bucket for the same headroom.

Wellman's welded-design buckets offer you better performance and longer service. In all types and sizes you'll do better with Wellman!



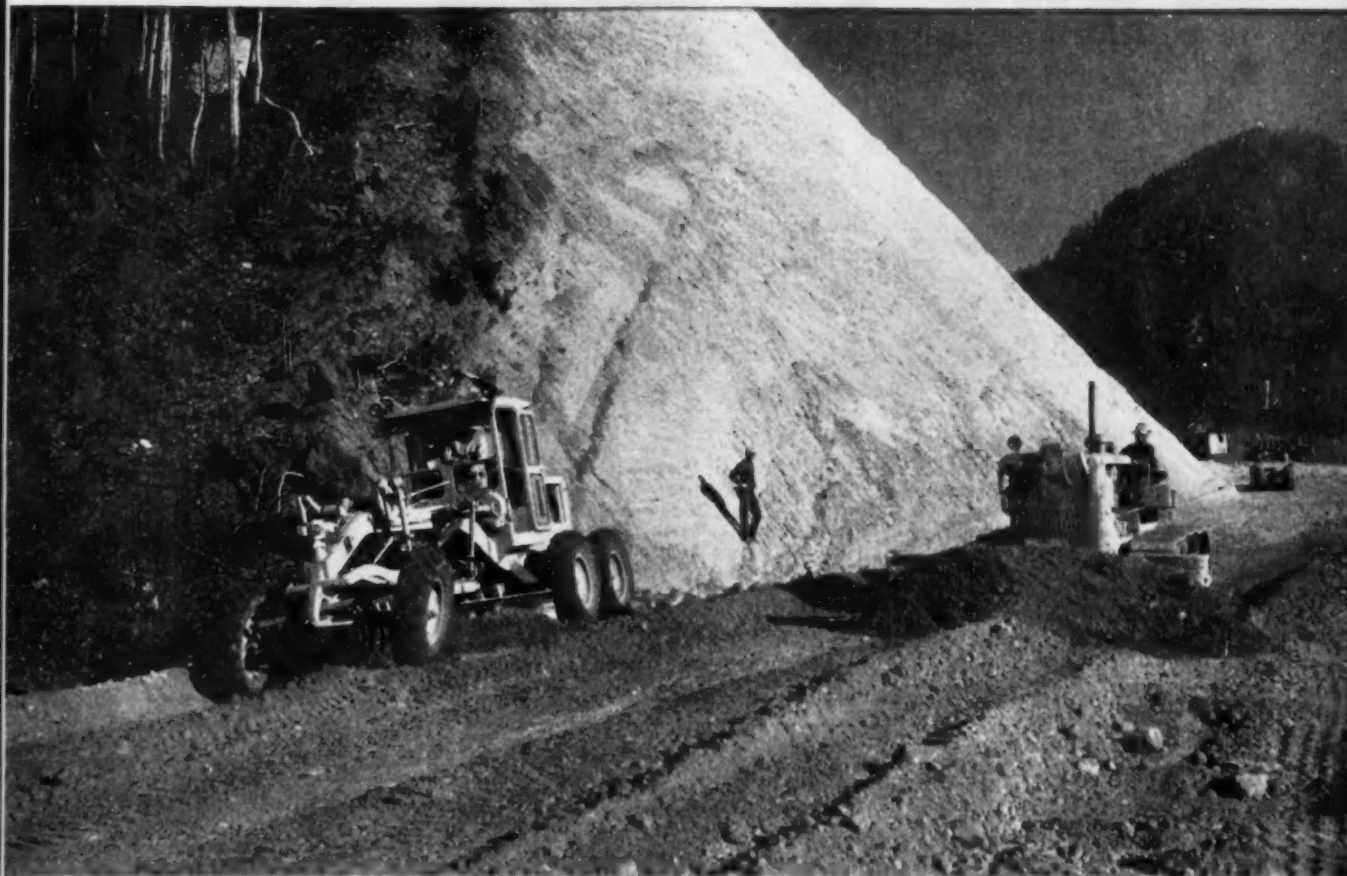
Want Facts?

Write for free descriptive bulletins.

CLAMSHELL • DRAGLINE
CUSTOM-BUILT BUCKETS
STONE AND WOOD GRABS

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

Don't send a LIGHTWEIGHT to do **HEAVY** grading



Hheavy grading is no job for balky, fragile equipment. That's why you see a Caterpillar No. 12 Motor Grader on the job in the picture, and almost everywhere heavy grading is required.

The powerful, durable Cat* Motor Grader not only is equal to the toughest jobs, but it does them quickly and inexpensively. It has a performance record and life line which no comparable equipment can match.

The No. 12 above is being used by Kiely Construction Co., Butte, Mont., on a 4-mile relocation job of U. S. 26 near the Palisades Dam, Irwin, Idaho. Besides grading in the rocky cut, the No. 12 also is compacting fill along an 84" culvert. Teamed with the grader on the job are nine D8s with scrapers, and two Diesel D13000 Engines.

Rugged construction backed up by quality materials gives the No. 12 the muscle to endure rough going. It has a circle built of box section that weighs 35 pounds per foot — the strongest circle used on any grader!

In addition, frame, engine and controls are made by one manufacturer. Frame strengths and power train match engine power. The entire unit is designed to *keep the blade where the operator wants it . . .* to stay on the job and out of the repair shop.

Because engine, frame and controls are Caterpillar, you get quick, reliable service from *one* dealer. He will be happy to demonstrate the entire line so you can see for yourself why 99 per cent of all Cat Motor Graders ever built still are in use, still building profits.

Caterpillar Tractor Co., Peoria, Ill.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**

YOU CAN ... TAKE IT WITH YOU

IT'S PORTABLE!

Easily transported from job to job and set up for use in minutes.



Capacities:

20, 25 & 30 Ton

Platform Lengths:

18, 22, 24 and 30 ft.

REMOVABLE SIDE ARMS

The assembled scale can be moved by merely removing six belts which hold the side levers in place. The complete scale can then be lifted as a unit and loaded onto a truck. Once positioned, it can be ready for use in minutes.

ACCURATE Perfectly balanced for lifetime accuracy. Wide steel bases, at both ends, support scale therefore require no concrete footing. Easy to read weighbeam is chrome-plated. Other vital parts are electro-plated against corrosion.

THE
**THURMAN
PORTABLE
TRUCK SCALE**

Est
1918

THURMAN MACHINE CO.

SCALE
DIVISION

156 North Fifth Street
Columbus, Ohio

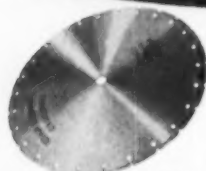
Dept.
A

A New 13.5 h.p.

CONCRETE CUTTER

for only **\$580⁰⁰**

Net f.o.b. factory



DI-MET SEGMENTED DIAMOND WHEEL—Available in two types: **STANDARD** for hard, dense, cured concrete. **SPECIAL** for green, uncured concrete and asphalt.

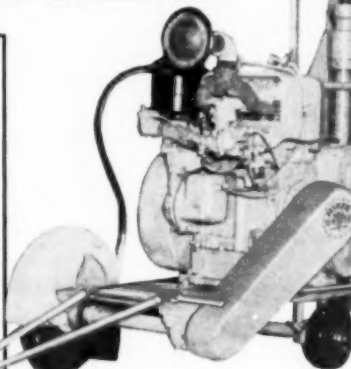
FEATURES

- EASY HANDLING**—3 wheel design with light-weight alloy castings.
- BIG BLADE CAPACITY**—Utilizes from 8" to 18" diamond wheels. Cuts to 3 1/2" depth with 12" wheel.
- SPLIT, HINGED BLADE GUARD**—For cutting close to curbs, etc. 12" standard, 18" optional equipment.
- POWERFUL ENGINE**—Full 13 1/2 h.p. Wisconsin Model TF gives a surplus of power for every cutting requirement.
- PRESSURE COOLANT** supplied through external hose connections.
- INSTANT BLADE DEPTH ADJUSTMENT** with hand-wheel and screw.
- SLOTTED BLADE COLLARS**—Powerful coolant ejection completely flushes blade and kerf.
- HUSKY SPINDLE**—Mounted in Dodge S.C. self-aligning ball bearing pillow blocks. 1 1/4" single end arbor with keyway.

FELKER DI-MET MODEL 135

Here's your answer to all run-of-the-mill concrete cutting jobs at a new low in price! This light-weight 3 wheel Felker DI-MET machine is specially built for all those jobs where a big heavy-duty machine isn't necessary... Use it for cutting CONTRACTION JOINTS, CURBINGS, DRIVEWAYS; FOR INSTALLING UTILITY POLES; FOR TRENCHING, PATCHING, ETC!

Now you can own a genuine Felker DI-MET Concrete Cutter incorporating features resulting from years of experience in the industry—built by the *only* concrete cutter manufacturer who makes his own diamond abrasive blades!



FELKER MANUFACTURING CO.
Torrance, California

World's Largest Manufacturer of Diamond Abrasive Cut-Off Wheels and Equipment

Get ALL the facts on the LOW-COST DI-MET MODEL 135. See your dealer or write us today!

If it's a "QUICK-WAY," it's a MONEY MAKER



The World's Leading Truck Shovel

"QUICK-WAY"



"QUICK-WAY" Model J Dragline



"QUICK-WAY" Model S Shovel



"QUICK-WAY" Model E Trench Hoe

"QUICK-WAY" the original Truck Shovel and always the standard, has for 30 years demonstrated its versatility and adaptability as well as its superb engineering and long lasting construction, not only in the United States but in 65 foreign countries as well.

"QUICK-WAY" gets to and from the job faster—up to 50 miles an hour on the highway. Quickly convertible—an attachment for every job with four booms. The Trench Hoe excavates, lowers tanks or pipe and backfills with one attachment. Crane handles numerous jobs—sets steel, loads or unloads logs, rails, materials, pours concrete, operates as a Magnet, Clamshell, Pile Driver, Hay Fork, Cane Fork, Log Grapple, Orange Peel or Skull Cracker. Equally efficient is the Shovel or Scoop and the new Front Dump Shovel for mining underground or where low overhead clearances are a problem.

Construction firms, governments, utilities, municipalities or the small business man who contracts jobs—all find "QUICK-WAY" a fast money maker. In "QUICK-WAY" you get fine construction, all steel for strength and lightness, simplicity of design, numerous parts interchangeable, correct balance for truck operation, high capacity to weight ratio. Write for full details.

**You can mount basic unit on your own truck
or purchase complete with your choice of trucks.**

Model L 10 Ton Crane, ½ Cu. Yd. Capacity, 7½ to 10 Ton Truck
Model E 7½ Ton Crane, 4/10 Cu. Yd. Capacity, 5 to 7½ Ton Truck
Model S 5 Ton Crane, ½ Cu. Yd. Capacity, 2 to 3½ Ton Truck
Model J 3 Ton Crane, ¼ Cu. Yd. Capacity, 1½ to 2½ Ton Truck

MAIL COUPON TODAY

"QUICK-WAY" TRUCK SHOVEL CO.

Dept. 124 • 2401 East 40th Ave.
Denver, Colorado • U.S.A.

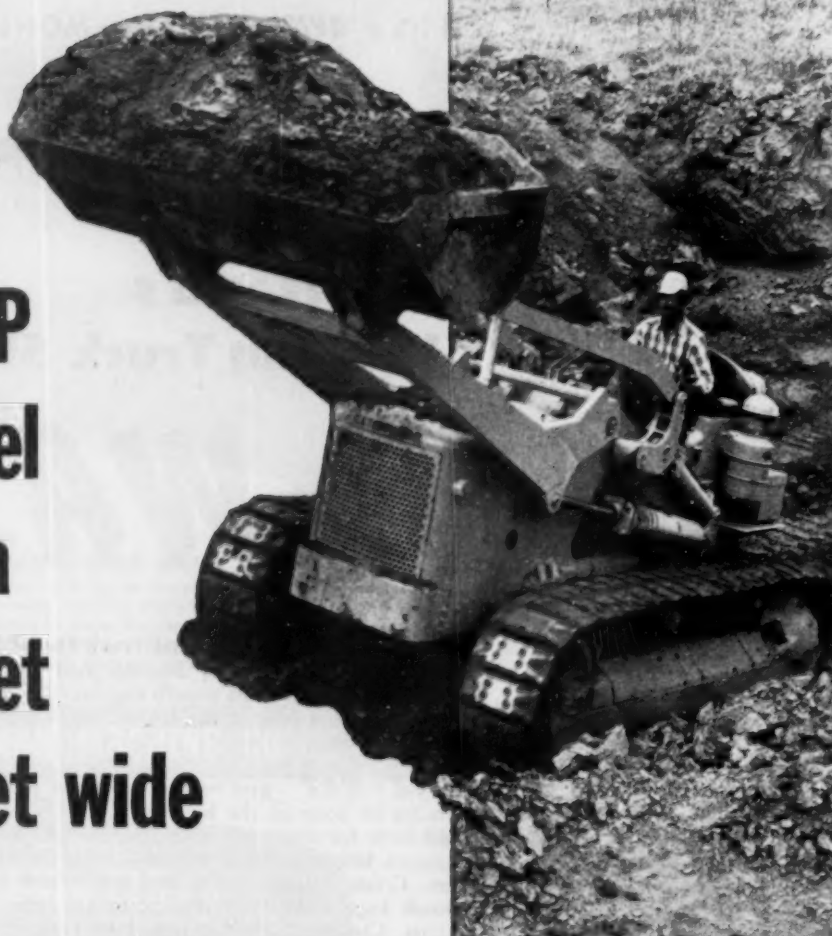
Please send NEW 28 page, two color FREE book giving complete details on all four "QUICK-WAY" Models.

Name

Address

City State

New CAT* 66 HP Shovel has a bucket 8 feet wide



This is the new Caterpillar No. 6 Shovel. A glutton for work on construction jobs, it excavates, stockpiles, strips, loads, 'dozes, backfills and handles cleaning, grading and landscaping chores. Here, take a close look:

The shovel frame and tractor are welded and bolted together. This is *one* unit — big, tough and completely Caterpillar built.

That bucket is 96 in. across, scoops up 2 cu. yd. easily, and has 66 HP behind its hard-faced cutting edge of high-carbon steel. There's a 35° automatic tip-back which holds the load in the bucket, and a 50° dump angle, with impact shaking, to get rid of even the stickiest material quickly and cleanly.

The bucket is wider than the widest part of the tractor. You can work close to walls, and cut sidewalls clean, with this shovel.

Those crawler tracks are extra long and designed

especially for this unit. They're non-oscillating, too, for added stability and finer grading.

The Caterpillar-built hydraulic system lets the operator raise and dump at the same time and features an automatic kick-out. And the operator sits high and clear, with excellent visibility of the bucket's sides, back and corners. Yet the unit's over-all height (6 ft. 11 in.) is low enough for working in tight places and low overhead areas.

Your Caterpillar Dealer is anxious to demonstrate the No. 6 Shovel for you. Give him a call.

Caterpillar Tractor Co., Peoria, Illinois

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**

Roads and Streets in the News

Street Programs Being Expanded

The nation's cities are without exception faced with extensive street improvement work, as traffic continues to burst the municipal seams and as miles of pavements wear out or become obsolete. Following are notes from a selection of city engineering leaders, in response to a letter from the Roads and Streets editors. The data cover both 1952 progress and 1953 plans.

Seattle

According to R. R. Hubbard, City Engineer, Seattle street and related construction for 1952 totaled nearly six million dollars, broken down as tabulated.

The work realized in the first three categories was largely accomplished under the local improvement district plan, under which most of our street development in Seattle has been done.

The work listed under bridges was entirely on the Alaskan Way Viaduct, under way for over two years. 1.62 miles of the viaduct has been completed, at a cost of \$7.5 million; this portion will be opened early in 1953.

The safety lighting work accomplished during the year is a continuation of the installation of mercury vapor lighting under a city-wide program to cover 333 miles of street. This work is being financed by a \$4 million bond issue authorized in 1948.

The street name sign program was provided for on a city-wide basis at a cost of nearly \$400,000. The work was divided into three contracts, two of which have been completed to date. The signs are of a porcelainized enamel plate, with black letters on white background, mounted on 2½-in. round galvanized pipe post. The general appearance of the new signs and the increased legibility to both vehicular and pedestrian traffic, has met with a great deal of favorable comment.

Our annual resurfacing and rehabilitation program of asphalt street work involved an output from the Department's plant of 69,700 tons of asphaltic mix. This tonnage was used to cover a total of 562,460 sq. yd. of street surface.

In the matter of new equipment, an expenditure of \$106,000 was made during the year for the purchase of the following: One station wagon, one Jeep, one suburban car, two power sanders, three eductors, including trucks, two medium weight trucks, one Wayne sweeper, and three street flushers, complete with trucks.

The program for 1953 is estimated at \$8,280,000 in the table above.

Topeka

Reports W. E. Briscoe, City Engineer of Topeka, Kansas capital city, had a 1952 street budget of \$315,000 plus an additional \$85,000 available from the gasoline tax. This money is used on the maintenance and repair of all streets including snow removal. Also, a small percentage is used in repairing of storm sewers. The bridge budget was \$9,611, used on the cleaning and repair of the city's few small bridges.

In 1952 seal coating was placed on 159 blocks of asphalt streets, or about 15.1 miles, and 1½ in. of asphalt wearing surface on 35 blocks, at a combined cost of \$136,000. New paving contracts were for 183 blocks, or 15.75 miles, of which 94 blocks were com-

pleted before freezing weather. On new work in 1953, officials expect additional 70 blocks or 6 miles of pavement, plus about the same amount of work in seal coating and asphalt surfacing as in the past year.

The City of Topeka has acquired one new ½-yd. truck-mounted crane, 8 new trucks, 2 pick-ups and one new leaf loader.

St. Paul

According to George M. Shepard, Chief Engineer, municipal construction by Saint Paul, Minnesota, for 1952 was somewhat restricted. 5.5 miles of new streets were graded at a cost of \$161,000. 4.3 miles of sewers were constructed at a cost of \$268,000. Routine curbing and sidewalk work amounted to \$230,000. 0.9 miles of new paving was constructed and 1.5 miles of resurfacing were completed by the City at a cost of \$258,000. One

SEATTLE'S STREET AND BRIDGE PROGRAM

Construction	1952 Mileage	Cost	1953 (est.)
Grading	7.78	\$ 114,971	\$ 474,257
Sidewalks	17.73	241,783	225,354
Paving	19.23	1,614,565	3,936,711
Bridges (Alaskan Way, etc.).....		3,000,000	2,384,061
Safety Lighting.....	70.00	762,520	1,107,450
Street Name Signs.....		238,000	152,000
TOTAL		\$5,971,839	\$8,279,833

★ Tulane Avenue, New Orleans, after reconstruction in recent street program



New Orleans Had Busy 1952 Street Year

(As reported by Albert G. Wyler, City Engineer)

Type of Improvement	Miles	Cost
Conc. & asph. paving, 26' or equivalent	1.60	\$445,500
Conc. & asph. wid. of paved blvds. (8' or equiv.)	1.23	140,000
Resurfacing with asph. of paved sts. 26'	0.07	7,000
Subsurface drainage	6.57	483,000
Asphalt surfacing	7.17	233,000

Maintenance and Repair Work

Miles of streets graded	993.20 miles
Number of cu. yds. of shell applied	72,235.00 cu. yd.
Number of miles of streets oiled & calcium chlorided	827.40 miles
Miles of ditches cleaned	440.00 miles
Lin. ft. of culverts installed	144.00 lin. ft.
Lin. ft. of curb reset (Straight curb)	39,733.00 lin. ft.
(Steel protected)	1,550.00 lin. ft.
(Circular curb)	4,033.00 lin. ft.
Sq. yd. of Sidewalks repaired	1,426.00 sq. yd.
Sq. yd. of roadways repaired	16,664.00 sq. yd.
Sq. yd. of new sidewalks	4,507.00 sq. yd.
Lin. ft. of new concrete curb and steel protected concrete curb	5,972.00 lin. ft.
Tons of asphalt processed & laid (binder & top)	73,986.25 tons

Three Gannison oil distributors, three 10-ton Gallon motor graders and ten 3½ ton Diamond T trucks were recently acquired for New Orleans street and municipal work.

bridge was constructed to replace an old timber structure at a cost of \$76,500, the cost being divided equally between the City and the Northern Pacific Railway.

In addition, the state highway department widened and resurfaced one mile of trunk highway at a cost of approximately \$199,000; also awarded contracts for two grade separation bridges in the City for \$253,000.

A special maintenance project was undertaken jointly by the Minnesota Department of Highways and the City of St. Paul involving the heater planing and applying of seal coat with chips on approximately 10 miles of trunk highways at a cost of slightly over \$200,000.

A joint project costing \$170,000 was carried out by the City and Ramsey County involving the grading and temporary surfacing on one mile of Larpenteur Avenue which is the north joint City-County boundary. This work involved peat excavation and heavy cut and fill. Extension of this roadway through the peat swamp gives an excellent connection directly to the business district from the northern portion of the City.

The Airport Approach road to Holman Field in St. Paul was constructed by the City, with the State Aeronautics Department and the Metropolitan Airports Commission, each paying one-quarter of the cost and the City the balance. A 7-in. unreinforced concrete pavement was placed, with crown so designed that standard placing and finishing machines could be used, leaving only a narrow strip on each side which required hand finishing.

The year 1952 marked the expenditure of the balance of the \$2 million fund allotted to the City in 1945 for its share of the construction cost of the Capitol Approach. The Approach project involved the condemnation and removal of buildings and the construction of several highways connecting

to existing streets. Due to increasing prices and expansion of the original plan approximately \$2¼ million additional will be required to complete the project on the part of the City.

The all-time record flood of the Mississippi River in St. Paul in April, 1952, caused \$3½ million damage, including \$300,000 to City facilities. The restoration of submerged sewer lines and river front walls is still in progress.

Of interest, also notes Mr. Shepard, is the appointment of a citizen committee by Mayor Daubney early in 1952 to prepare a comprehensive bond issue program of public improvements including sewers, streets, schools, bridges, lighting, parks, etc. This program, possibly requiring \$30 million, will be submitted to the people early in 1953.

Boise

J. L. Morris, city engineer of Boise, Idaho, pictures some of the problems created by rapid city growth, in a reply to a query from the Roads and Streets editors.

Boise, with 34,000 official population, has provided roads for at least 50,000 people, with visitors from a trading area of more than 100,000

population. Items in the 1952 program:

(1) The budget of \$265,000 (year ending April 30, 1953) provided for 120 miles of bituminous treated and 30 miles of graveled or sanded streets. A new asphalt distributor, chip spreader and roller have been added to the street equipment recently.

(2) About 13 miles of street surfaces were sealed by city street crews, and 3 miles by contract.

(3) The city's trucks sanded 9 miles of streets and about 3 miles of alleys, aided by 2 large and 1 small motor grader and a Hough loader.

(4) The street department rebuilt and graveled 2 miles of streets, largely converted from "country road" conditions.

(5) New contract work included placement of 2 in. bituminous paving over 1½ miles of streets under local improvement districts, a small bridge, and patching of downtown streets and alleys.

(6) Of interest was the award of a contract with Pavement Planing Co. of Salt Lake City for ironing out corrugations of 2 miles of street pavement. This work was followed by a city sealing crew.

(7) The city crew this winter has engaged in the replacement of 8 small bridges and of numerous wooden culverts with corrugated metal pipe. In addition, by this spring about ¼ mile of new drain lines from 10 to 30 in. in diameter will have been placed as a means of improving appearance, reducing maintenance and improving drainage conditions.

(8) The most troublesome problems are not always the largest ones. An example in the case of Boise was the solution of a difficult drainage problem at a downtown street intersection, where the street grades flatten and water accumulated, overflowing low curbs, running into adjacent stores. A combination of culvert replacement and construction of a "stowaway section" across one of the streets solved the problem.

Mr. Morris points out that the people of Boise enjoy the benefit of quite an aggregation of engineering experience. Mayor Edlefsen is a veteran in contracting on levees, roads and other work and was with the State Highway Department for 17 years having taken leave to hold his present job.

How to Solve Intersection Drainage?

Mr. Morris, City Engineer of Boise, says, "we are still looking for a simple, fool-proof way of carrying water from one gutter to the other across the street in situations of this kind. We have tried corrugated metal pipe with square ends (they mash down), pipe with reinforced ends (a tire can be torn with this obstruction), cutting the ends off on a slope, leaving too big of a hole), putting a grill over the end so that cars can run across it (expensive, plugs up easily), and siphons which are expensive and need cleaning. Does anyone have a better system? What are other cities doing with similar problems."



★ World's largest suspension bridge system to be built at Mackinac Straits connecting upper and lower Michigan

Mr. Morris himself has been a registered engineer in Idaho for 15 years and has been with the city department for close to that time. Street Superintendent White has also served the State Highway Department.

Merritt-Chapman & Scott & American Bridge get \$66 million Mackinac bridge

The Mackinac Bridge Authority, through its Consulting Engineer, Dr. D. B. Steinman of New York City, has announced the award of contracts totaling \$66,070,563 for the construction of the proposed bridge across the Straits of Mackinac connecting the upper and lower peninsula of Michigan. The Merritt-Chapman & Scott Corporation of New York City was the successful bidder for the substructure work which involves the construction of 34 water piers varying in depth from 50 to 200 ft. below mean water level. Their low bid was \$24,525,600.

The American Bridge Division of United States Steel Corporation was awarded the steel superstructure which includes 9,304 ft. of varying length truss spans and a suspension bridge 8,614 ft. in length, anchorage to anchorage, making it the longest in the world. The main span of the suspension bridge will be 3,800 ft. long and will be second only to the Golden Gate Bridge in length and 300 ft. longer than the George Washington Bridge. The contract entered into by the Mackinac Bridge Authority and American Bridge Company amounts to \$41,544,563.

Both contracts are contingent upon the successful completion of the necessary financial arrangements by the Authority. B. J. Van Ingen & Company, Inc., financial advisers to the Authority, is expected to receive bids during March or April for a \$96,000,000 bond issue. A nationwide syndicate of some 160 financial houses was prepared to underwrite the issue.

There will also be 8,267 ft. of approach roads and viaduct structures in the project. Completion is set for November 1, 1956.

The bridge will cut actual crossing time at the Straits from approximately 53 minutes to 10 minutes,

a saving of 43 minutes, excluding any waiting time for the ferries. This waiting time varies from 1½ hours in the fall and winter to 2½ hours during the summer months. The records show that during certain peak periods, motorists have had to wait up to 17 hours before being able to cross the Straits.

• The January 29 letting for which a contract section (Contract 14, Section 7) of the New Jersey Garden State Parkway was advertised, drew 11 bids from well-known firms in the East.

Low bid, \$1,195,365—high, \$2,548,725—next to high, \$1,943,980. Other bids ranged rather uniformly over the \$750,000 spread.

Constructors of Western Pennsylvania elect Sturdy

Howard H. Sturdy, Vice President of Dravo Corporation, was elected President of the Constructors Association of Western Pennsylvania, at the Association's recent annual meeting in Pittsburgh.

William R. McQuade, of James H. McQuade & Sons Company, was elected vice-president for the highway division of the Association, and Allan D. McCombs, of John F. Casey Company, Vice President for the heavy division. Edward McCready, Jr., of Edward McCready, Jr., & Son Com-

pany, is Treasurer; Charles H. Booth, Jr., of Burrell Construction & Supply Company, Secretary; and Anthony Benintend, of Ben Construction Co., Assistant Treasurer.

As is customary with annual meetings of this Association, Awards for outstanding safety records among workers were made at the annual banquet (see accompanying photo).



★ Howard H. Sturdy, Vice President of the Dravo Corporation, Pittsburgh, and General Manager of its Contracting Division, President of the Constructors Association of Western Pennsylvania for 1953



★ Safety Awards being given at the annual meeting of Constructors Association of Western Pennsylvania. Carl J. Jacobsen, of Carl J. Jacobsen, Inc., Chairman of the Accident Prevention Committee, presented safety awards to Howard Amman, of Sanctis Construction Company.

Words of Wisdom on Highway Promotion

It takes a fellow such as Samuel C. Hadden, our venerable friend and recent highway director in Indiana, to translate the need for larger road programs into language the ordinary citizen can appreciate. Speaking at the Boston ARBA meeting recently, in response to receiving the 1952 George Bartlett Award, he used the occasion to give us counsel on our biggest job, that of enlisting public support of adequate highway programs.

The following remarks are presented to Roads and Streets readers as being worthy of study and reflection:

"It was George Bartlett, whom we honor today, perhaps more than any other man who persuaded the people that they could afford something better than corrugated gravel and pot holed stone roads and launched the era of hard roads construction. Today we need such enthusiasm, energy and faith as he exemplified in our accepted task of lifting our highway systems to the higher levels we all envision.

"Let us strive to present to every highway user as directly and forcefully as possible the most fundamental of all highway questions, namely: 'How many years are you willing to wait for the roads and streets that you need right now?' 'Do you want to wait 5 years, or 10, or perhaps 15 or 20 years or even more?' This line of inquiry with supporting data on our lagging progress in meeting recognized needs is bound to stimulate and sustain constructive and fruitful public thinking.

"Then we must convince the people that they can afford a substantially greater annual outlay for roads than they are now making. While they may be overtaxed for some purposes this certainly is not true with respect to roads but quite to the contrary. The road user's road taxes are only a minor fraction, being less than 10%, of the costs he voluntarily imposes upon himself in connection with his highway transportation.

"Perhaps we would do well to talk about immediate and less about ultimate needs; more about millions and less about billions. There is always a very real danger that our estimates of ultimate needs will frighten the timid and cause the judicious to

grieve. They may say: 'If we have to do all that, there is no use even trying.'

"This reminds me of something I learned from an old promoter many years ago. He said: 'If you want a man to eat a dozen eggs, you do not put them on a platter and shove them under his nose all at once. If you did, he would not eat even one of them; but if you serve them to him one at a time, he will not only eat them, he will pay you for them.'

"As a plain, simple fact we do not need unlimited highway funds and could not use them judiciously if we had them. Let us not overlook the fact that we are short of engineers, contractors and material producers as well as of money. I venture to say that the average State Highway Department would have to strain every nerve to utilize quickly and properly as much as 50% additional construction. This is an attainable objective so why not concentrate on it? Gradually, of course, progress could be accelerated."

Briefly Noted . . .

How would you like to have the old fashioned turn stile system again, with frequent stops to dig down for more money?

This seems to be the next step in the toll road idea if the Oklahoma State legislature passes a bill now pending. This bill would create a bridge authority out of the State Highway Commission with power to borrow \$71 million dollars for bridge construction. The State Treasury would buy most of these bonds, and the Highway Commission would pay the authority an annual rental of 1/15 of the cost of each bridge to retire outstanding indebtedness.

Tolls up to \$1 per bridge would be charged where the authority decides it is necessary to "make the bonds a sounder investment for private capital in the event the State Treasury is forced to dispose of these certificates."

. . .

Urban expressway development calls for both promotional and engineering skill, with perhaps even more showmanship than technology. Design standards have evolved rapidly for

roadway design, and traffic study techniques and other engineering methods are well in hand—but not so the winning of public interest and support.

That is why so much depends on getting local newspapers behind the urban expressway plan. Editors can interpret to the people why these costly projects are necessary, and how they will pay off. Editorial support is particularly helpful in cases where people are stirred up over the razing of homes.

In Rochester, where an ambitious inner loop expressway is planned by state engineers, one local paper did something that's always effective. It ran a big aerial photo showing how a similar sized city (Kansas City) is making headway on its expressways. Nothing like a bit of outside civic competition to get civic action on the inside.

. . .

Twelve states were represented in a panel on paving practice at the North Atlantic highway meeting. Twelve patterns of state design practice were described, about the only common denominator being the trend to heavier and heavier pavements and bases.

Is the difference in practice on two sides of a state line due mainly to differences in climate and materials? Or to a varying lag in technology? Or is it that there is more than one way to build a good pavement for the money, and more than one way to skin a cat?

. . .

What is the saturation point in motor vehicle registration? Highway planners and traffic engineers would like to know. One sure bet is that traffic volumes haven't reached their peak. Last year over 1,200,000 more cars were built than were junked, and the ratio is likely to be repeated this year. Truck traffic is still gaining.

Talking at the AGC of Missouri annual banquet recently, state highway engineer Rex Whitten of Missouri quoted E. H. Holmes of Public Roads: "They thought the saturation point in automobile use had been reached back in 1903. It has been like that periodically ever since. Each time the figures veered sharply upward again. Who knows when it will level off?"

IT COSTS LESS TO BUILD GOOD ROADS THAN TO HAVE POOR ROADS

**P & H
LIMA
LORAIN
BAY CITY
MANITOWOC
UNIT
BUCYRUS-ERIE
NORTHWEST
KOEHRING
OSGOOD
INSLEY
LINK-BELT SPEEDER**

When it's time to rebuild...
These great shovels deserve the best

Stoody Hard-Facing Alloys

TEETH, ROLLS, IDLERS, TUMBLERS, PADS, BUCKET LIPS
and similar wearing parts are easily kept in
tip-top running condition with STOODY HARD-
FACING ALLOYS.

The Guidebook shows how to repair wear dam-
age quickly—make old shovel parts do the work
of new! If you operate shovels and crawlers ask
for your copy today...there is no charge!

STOODY COMPANY

11925 East Siuven Avenue, Whittier, Calif.



When writing advertisers please mention **ROADS AND STREETS**, April, 1953

Low Cost Rolled Curbs, Feature of Detroit Area Paving



1 Water is poured into the gutter, using a burlap pad to protect the concrete



2 As the water trickles along, depressions and high spots in the gutter line are quickly revealed



3 Wrinkles are ironed out with a hand trowel, trickle allowed to proceed



4 The trickle finally reaches the inlet, where again a minor imperfection in surface is troweled

Nearly thirteen million square yards of concrete street and suburban road paving has been placed since the War by city of Detroit and suburbs. Here described are methods used by one contractor who placed 600,000 sq. yd. in 1952.

IN Detroit and environs a large yardage of concrete street paving has been placed recently using an economical, low rolled curb which is formed without the use of face curb forms. The accompanying photos show how one of the largest concrete paving contractors in Detroit—Denton Construction Company—has participated along with other contractors in streamlining the placement of this paving on residential streets.

Located in the suburb of Hazel Park, the pavement pictured consisted of 8-6-8-inch balanced thickness concrete, usually 29 feet back to back of curbs. A large yardage was placed in this suburb during 1952 under an assessment program, the Denton firm placing over 100,000 square yards for Hazel Park as part of a year's work of 610,000 square yards in the Detroit area.

An important detail was to secure good gutter flow to inlet gratings located at intervals of about 300 feet. Since the terrain is very flat, the street grade had to be cut to a carefully designed gradient to insure adequate collection into storm sewers.

"Detroit Special" Finisher

After cutting and finegrading the native soil was done as accurately as possible, forms were placed and the pavement laid in 14½-foot lanes. Following the paver (a Rex) a Heltzel "Detroit Special" finisher, equipped with pneumatic tired wheels for moving between jobs, was used for spreading and finishing. This unit was designed to leave an excess of concrete at the curb edge, sufficient for shaping into a curb. The outer form was set at curb height, with the finisher striking off at gutter height.

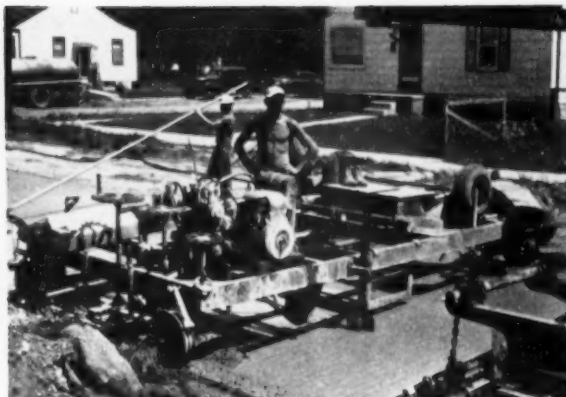
Next followed a contractor-built joint cutting and curb shaping machine, which cut a longitudinal dummy groove and partially formed the curb.

The curb was given its final shape by manual use of a wooden shaping board or darby (see picture). Long handled steel or wood floats followed by a burlap belt and membrane curing application completed the finishing job. Dummy joints with ¼x2-inch premolded strips were placed every 20 feet and at intersections.

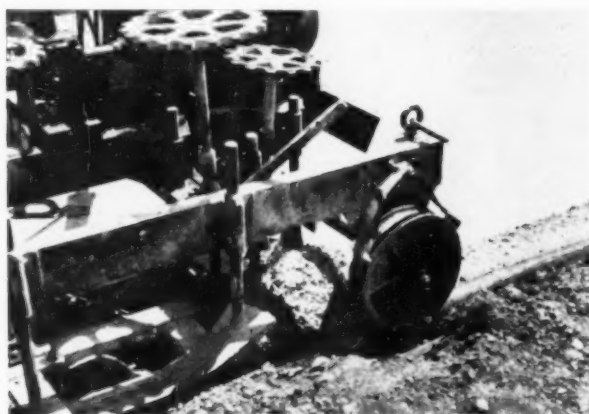
Then followed a rather unusual but simple operation of testing the accuracy of the flow line at the gutter, and making necessary correction as the concrete sheen began to disappear. Water from a 5-gallon pail was poured



★ A Heltzel "Detroit Special" finishing machine, with wheels for job moves, was used by the Denton organization



★ Following the finisher, a specially built joint machine cuts a dummy groove and leaves the curb concrete partially shaped up



★ Close-up of Denton's special curb forming device, one of several models built in the contractor's shop



★ A few quick hand operations by this fellow, using a wood darby, and the curb is done

slowly into the gutter at a high point on the grade, the water being poured on a burlap pad to prevent scouring the fresh concrete. This water was allowed to trickle along until it reached the nearest grating. As the water progressed, it was watched closely. When and if a slight widening of the trickle or damming up occurred, this was a quick visual evidence of a deviation in the grade, and a few deft passes with a hand trowel or float ironed out the wrinkle.

Throughout this operation, care was taken not to work any surface area more than an absolute minimum, so as to avoid bringing any laitance or excess fines to the surface and affecting the texture and weather resistance of the concrete. This simple procedure, done by the regular finishing crew, has completely eliminated unsightly "bird baths" from the pavement—a refinement that will go a long way toward making local citizens feel that they have been given a good looking, well constructed street.

The paving for this suburb was inspected by Municipal Engineering

Service, a consulting firm reporting to city manager Robert McNutt. Air entraining cement was used. Core drillings were required for acceptance as part of the inspection routine, cores permitting a check on both depth and strength.

The paving here described, including integral curb and cast iron gratings, cost \$3.00 per square yard, with \$3.78 cost for the complete grading, drainage and paving job. Similar paving in other Detroit suburban assessment programs recently has cost from \$2.82 to \$3.60 per sq. yd. depending on size of project, location, time of year and other factors.

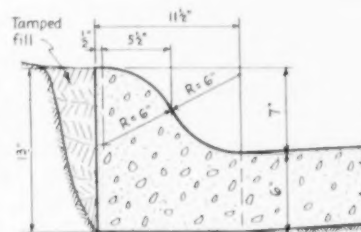
Contractor's Work Praised

Denton Construction Company is an example of a contracting firm whose leaders believe in delivering quality work, sometimes beyond the wording of the "Specs." In reviewing this article, city manager Robert J. McNutt of Hazel Park wrote the Roads and Streets editors:

"In Hazel Park we have been very well pleased with the operation of

the Denton Construction Company. They have a record of superior workmanship as well as speed of construction.

"As an example of their ability to perform well in a short length of time, I would cite the example of two miles of widening on Dequindre Road in the summer of 1952 (here pictured. Editor). This contract, under Federal aid through the State Highway Department with myself acting



ROLL INTEGRAL CURB DETAILS

★ Rolled curb design which eliminates curb face form. Design adapted to various curb heights, 7 in. being most common

Concrete Pavement Awards in Postwar Years—Detroit and Vicinity

(in square yards)

MUNICIPALITY	1947	1948	1949	1950	1951	1952	TOTAL
Allen Park	0	0	23,350	50,769	91,728	224,000	389,847
Berkley	0	0	2,610	42,727	36,931	51,211	133,479
Birmingham	0	0	0	24,874	76,900	28,679	130,453
Centerline	0	0	0	45,700	30,500	80,500	156,700
Clawson	0	0	0	0	0	6,340	6,340
Dearborn	172,502	165,599	178,084	412,966	176,836	118,840	1,224,827
Dearborn Twp.	0	0	0	0	31,852	86,207	118,059
Detroit	622,176	1,188,321	1,415,222	1,348,458	925,570	639,662	6,139,409
East Detroit	0	0	0	32,400	9,775	90,764	132,939
Ecorse	0	3,439	0	0	16,322	0	19,761
Ecorse Twp.	0	0	0	0	58,566	49,078	107,644
Ferndale	3,100	8,203	10,992	18,264	33,958	40,955	115,472
Garden City	0	0	0	0	19,572	29,238	48,810
Harper Woods	0	0	0	0	57,145	78,708	135,853
Grosse Pte. Farms	5,260	25,591	0	0	0	4,396	135,247
Grosse Pte. Woods	20,018	33,293	21,200	18,122	46,222	105,234	244,089
Hazel Park	24,819	23,757	7,861	44,148	75,695	140,718	316,998
Inkster	0	0	0	41,185	64,459	81,781	187,425
Lincoln Park	0	16,000	28,000	118,000	183,034	172,000	517,034
Livonia	0	0	0	45,000	24,896	28,392	98,288
Nankin Twp.	0	0	0	0	2,916	0	2,916
Oak Park	0	0	3,000	4,200	120,289	228,285	355,774
Pontiac	18,412	43,273	30,853	14,184	59,885	22,750	189,354
Port Huron	2,863	56,900	45,555	34,960	18,118	21,100	179,496
Redford Twp.	0	0	0	0	42,928	137,444	180,372
Roseville	0	0	0	0	24,058	59,340	83,398
Royal Oak	0	0	0	87,694	89,090	232,266	409,050
St. Clair Shores	0	0	0	0	0	106,365	106,365
Selfridge Field	0	0	0	0	27,904	0	27,904
Taylor Twp.	0	0	0	0	6,743	82,271	89,014
Trenton	0	0	0	0	0	7,155	7,155
Warren Twp.	0	0	0	0	115,325	63,655	178,980
Wayne	0	69,598	30,325	42,427	91,088	54,000	287,438
Wyandotte	87,043	40,614	0	106,382	89,923	90,000	413,962
Total	956,193	1,674,585	1,797,052	2,532,460	2,648,228	3,161,334	12,769,582

as project engineer, consisted of two miles of 12 ft. widening plus integral curb along existing 20 ft. pavement, with recapping on the center 22 ft. Also included in the contract was a half-mile of 36 in. storm sewer and

varying lengths of 24, 18 and 12 in. storm sewers.

"Excavation work was started July 3, 1952, and the project was opened to traffic at 7 P.M. July 31. To me this is an amazing example of efficient

operation by one of the best contractors in the United States.

"The City of Hazel Park plans to install approximately \$300,000 of similar type of pavement each year until our 35 miles of unpaved streets are covered. As a side note, you may be interested in our policy of planting trees in the parkway at no cost to the property owner, whenever it is necessary to remove a tree for construction of a new pavement. We also install trees at cost when requested by the property owner.

"Hazel Park has grown from a community of 12,000 people in 1942 when it was incorporated to a metropolitan area of more than 20,000. Along with the growth have come problems in transportation, sewers, water supply and other attendant difficulties in a growing metropolitan area."

Detroiters Like Concrete

The accompanying tabulations shows how Detroit and its suburban communities have placed approximately 12,800,000 sq. yd. of concrete pavement in the six years since the War. This type of pavement, embodying the economical rolled curb and a reasonable thickness, has been built at first costs competitive with other types designed for price appeal.



★ Another feature of suburban paving work around Detroit is the widening of rural-type arterial pavement into "city sections", along outlying industrial thoroughfares. An outer lane and rolled curb are added on either side of the existing pavement. This is accompanied often by a resurface of the old pavement, replacement of dangerous and obstructing side ditches with buried drains, and dressing up of the roadside area to permit better access to business buildings. Greatly improved appearance, convenience and safety are thus obtained.

When is contractor liable for transportation tax?

The 3% federal transportation tax does not have to be paid by the state or any subdivisions of the state on the transportation of materials. Contractors, however, who do work under contract for the state or any of its subdivisions are liable for that 3% tax unless the material is consigned to the state or the subdivision in care of the contractor.

There is apparently very little difficulty or misunderstanding about this situation when the materials are shipped by railroad. The contractors and the railroad agents are apparently familiar with this ruling and apparently see to it that the bills of lading are made out in the proper manner; consigned to the political unit in care of the contractor.

The same rule applies when materials are hauled to the job site by hired trucks or by a commercial producer. It is necessary that the load tickets, contractor's records, and the records of the trucking company or the commercial producer indicate that the material was actually delivered to the governmental body in care of the contractor. The Internal Revenue Bureau is constantly checking up on trucking of materials to construction jobs, and in cases where the material has not been properly consigned to the political unit and unless the load tickets or other records clearly show that the material is delivered to the political unit in care of the contractor, the contractor is liable for the 3% transportation tax.

If the material is consigned to the state or political subdivision in care of the contractor, the case comes under Section 3475(b) of the code as amended, effective December 1, 1943. In that case the amounts paid for the transportation of the materials are exempt from the tax regardless of whether such transportation charges are paid to the carrier by the contractor or by the shipper.—*"The Construction Advisor"* of A.G.C. of Missouri.

Bulletin on bridge design

"Method of Converting Heavy Motor Vehicle Loads into Equivalent Design Loads on the Basis of Maximum Bending Moments." This is the title of a 565 page printed report, by Henson K. Stephenson and Kriss Cloninger, Jr.; Bulletin No. 127, Texas Engineering Experiment Station. Price \$3.00.

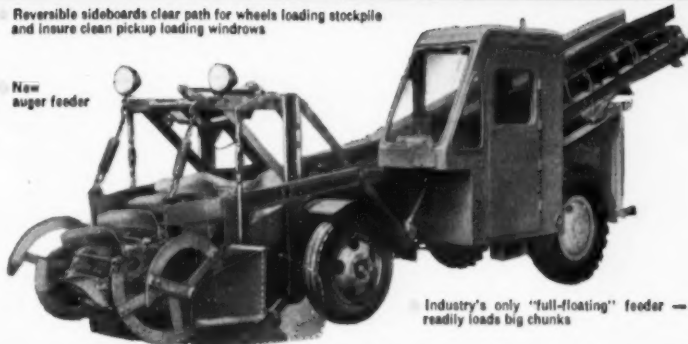
The publication is the result of a co-operative investigation of bridge types by the U. S. Bureau of Public Roads and the Experiment Station. The research was an effort to supply more accurate knowledge on stress-producing effects of various heavy vehicle types and loadings, and their expected frequencies, as a means of reducing the cost of bridge structures through minimum standards.

Available with remittance addressed to Texas Engineering Experiment Station, College Station, Texas.

DOUBLE DUTY— with the NEW *Athey* Force-Feed Loader!

Reversible sideboards clear path for wheels loading stockpile and insure clean pickup loading windrows

New auger feeder

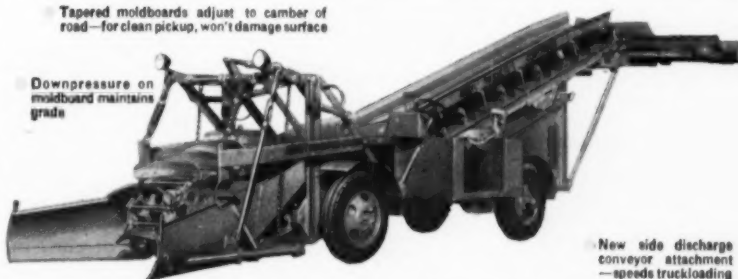


Industry's only "full-floating" feeder — readily loads big chunks

1 IT'S A STOCKPILE-WINDROW LOADER
Athey Force-Feed Loader replaces a shovel, clamshell, or big crew of men on *both* stockpile and windrow loading. You keep machine producing . . . make bigger profits on more jobs.

Tapered moldboards adjust to camber of road—for clean pickup, won't damage surface

Downpressure on moldboard maintains grade



New side discharge conveyor attachment — speeds truckloading

2 IT'S A HEAVY-DUTY WINDROW LOADER
For high speed windrow-loading. One man does all the loading work of a crew. Loads loose materials up to 10 cubic yards per minute . . . snow up to 20 yards per minute. Loads coal, dirt, cinders, gravel, stone. Speeds from one job to another at 20 m.p.h. Saves time . . . labor . . . money.

SEND FOR NEW CATALOG



OR SEE YOUR
ATHEY-CATERPILLAR
DEALER

MAIL THIS COUPON

RS-4

Yes, I want to know more about this new, low-cost loading method: Send new catalog on Model 3 Loader.

Name _____
Position _____
Company _____
Address _____
City _____ State _____

Athey

ATHEY PRODUCTS CORPORATION
5631 WEST 65TH ST., CHICAGO 38, ILLINOIS

Toll Road Proposals "Bustin' Out All Over"

LEGISLATION looking toward new or broadened toll highway financing and construction is under consideration or expected to be proposed this year in the legislatures of at least 22 states, according to reports available early in February.

With prospects that the list will be further expanded as legislative sessions progress, the states include Alabama, Arkansas, California, Connecticut, Delaware, Illinois, Iowa, Kansas, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Mexico, New York, Pennsylvania, Rhode Island, Tennessee, Texas, Washington and Wisconsin.

Meanwhile, proposals for the financing and construction of new or extended toll highway facilities under the terms of existing laws are in various stages of preparation, planning, study, or consideration in at least 13 states—Colorado, Florida, Indiana, Kentucky, Maine, Massachusetts, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia.

Toll road construction is currently in progress in New Jersey, New York, Ohio, Oklahoma, Pennsylvania and West Virginia.

Birmingham-Mobile

Alabama: When the legislative session gets under way in May, it will be asked by an interim study committee to appropriate funds for engineering surveys to determine whether there is sufficient traffic to warrant toll highways in the state. A \$100,000,000 toll highway from Decatur through Birmingham to Mobile was unsuccessfully proposed in the 1951 legislature.

Arkansas: A resolution for a study by the State Legislative Council to determine the feasibility of toll roads is pending. The council would be directed to submit its findings and recommendations to the 1955 legislature.

California: Pending in the state legislature is a bill proposing the creation of a State Toll Highway Authority, empowered to issue revenue bonds for the construction of toll highways.

Colorado: State Highway Commission is studying the feasibility of a plan for the construction of an all-weather highway tunnel under Loveland pass as a toll road project.

Connecticut: A number of bills relating to highways are pending in the legislature. One backed by the Republican leadership, would authorize issuance of \$135,000,000 in revenue bonds to finance construction of the Fairfield County Throughway, from

Greenwich to West Haven. Another bill under the same sponsorship would permit the charge of tolls on highways after the highway is paid for so that the excess money can go to finance other highway projects.

Also pending is a bill for establishment of a State Toll Road Authority, empowered to finance and construct. Another proposal calls for construction of an all-purpose toll highway across eastern Connecticut, from New York to Rhode Island, with a branch north from New London to Norwich or beyond.

Delaware: The Highway Commission has advocated enabling legislation to permit construction of a toll highway linking the Delaware Memorial Bridge with the Chesapeake Bay Bridge.

Georgia: A bill would repeal a 1952 state law authorizing a toll super-highway between Cartersville and the Tennessee line. Plans for the project were shelved last year after two consulting engineering firms reported there is insufficient traffic at present to finance it.

Illinois: Governor Stratton asked the legislature to give "immediate and serious consideration to the possibility of constructing super or specialized traffic highways, to be financed by tolls paid by users." Initial step is expected to be the creation of a commission and authorization of traffic and engineering surveys.

Iowa: A joint resolution pending in the legislature proposes creation of a state legislative interim committee, with a \$100,000 appropriation, to study the feasibility of an east-west toll road across the state. The committee would be directed to report to the 1955 legislature.

An earlier majority report by a special toll road study committee held that toll highways across the state would fail to pay for themselves.

This contention has been disputed, and the Harrisburg, Pa., engineering firm of Gannett, Fleming, Corddry and Carpenter, Inc., recently expressed belief that a four-lane cross-state highway could pay for itself in 29 years.

Kansas: Governor Arn asked the legislature to create a state turnpike authority, empowered to finance the construction of toll roads through revenue bonds.

Kentucky: Governor Wetherby announced plans for discussions with Ohio officials on the possibility of a Toledo-Cincinnati-Louisville-Nashville turnpike, with a spur through Lexington to the south.

At Louisville, the road would connect with a proposed 40-mile \$22,000,000 toll turnpike running south to Elizabethtown. The Louisville-Elizabethtown project, earlier announced under consideration, is regarded as the first link in a proposed program that ultimately would extend to Nashville.

Maine: State Turnpike Authority plans early marketing of some \$75,000,000 in revenue bonds to refinance its present outstanding debt and to finance extension of turnpike from Portland 60 miles north to Augusta at \$60,000,000 cost.

Maryland: Partial financing of some highways by tolls, possibly to the extent of \$50,000,000, is under consideration as part of a long-range highway modernization program now pending in the state legislature (R&S Jan. '52).

Massachusetts: State Toll Highway Authority, of which P. H. Kitfield is newly appointed chief engineer, announced the retention of Howard, Needles, Tammen and Bergendoff as general consultants on a proposed east-west cross-state toll highway project, authorized by legislation last year.

Florida Legislature Considers Toll Roads as Tourist Lure

Florida: Still awaiting decision in Florida are the questions of whether to proceed with proposed toll highway financing and construction, and whether such a project should be limited to a route from Jacksonville to Miami or should include a spur to the Tampa Bay area.

Governor McCarty's new administration indicated it has an open mind on the toll road issue and will go into the matter thoroughly before making a decision. A report filed late last year with the Florida State Improvement Commission by the New York

engineering firm of Coverdale and Colpitts said a proposed 313-mile toll super-highway from Jacksonville to Miami would be economically feasible and recommended it be started with a \$180,000,000 bond issue.

Although the report further held the feasibility of a proposed 133-mile spur to the Tampa Bay area "is believed open to question," members of the outgoing commission, under former Governor Warren recommended to the new administration that the full turnpike project be started "at the earliest possible date."

Michigan: Toll road enabling legislation expected to be considered by the state legislature, which has rejected similar proposals in the past. Report of an interim study committee is awaited.

Minnesota: Creation of a commission to study all matters relating to highways, with special attention to the possibilities of toll roads, has been proposed in the legislature.

Missouri: Governor Donnelly has asked the legislature to consider toll road enabling legislation. A bill to create a State Turnpike Authority, with broad powers to locate, finance and construct toll highways, was introduced with the backing of an interim committee.

Nebraska: Plans for introduction of a toll road enabling act were announced by Senator Charles F. Tvrdek of Omaha, who said the state should be ready to join any movement to push a toll road network from coast to coast.

New Hampshire: Awaiting legislative consideration is a report by the Department of Public Works outlining a possible \$40,000,000 toll superhighway program for central and eastern New Hampshire. Drawn up as the result of an interim study requested by the 1951 legislature, the plan envisions a 40-mile limited access highway from the Massachusetts border to Concord, as well as an extension of the present New Hampshire Turnpike from Portsmouth to Rochester.

New Jersey: A supplemental financing authorization obtained by the New Jersey Turnpike Authority from its bondholders last fall gave the agency permission "to proceed, within a reasonable time, with the financing of any one or all of the extensions which may have been legislated and which have been under study for many months."

Meanwhile, the New Jersey Highway Authority, a separate agency, is proceeding through temporary financing with the construction of the Garden State Parkway as a toll facility. Plans have been announced for the sale in the spring of the first block of bonds from the \$285,000,000 issue authorized for completion of the project. Meanwhile banks have lent \$28,000,000 temporary loans for first construction projects. The bond financing program is expected to be started with the sale of \$50,000,000 or \$60,000,000 worth of state-guaranteed revenue bonds. Opening of the parkway is scheduled for early next year.

New Mexico: A bill would authorize the State Highway Commission to build toll roads. Commission Chairman Ralph Jones has expressed doubt, however, that toll roads would be feasible.

North Carolina: State Turnpike Authority is awaiting the outcome of engineering studies preparatory to starting construction of a new toll

superhighway this year. A planning schedule calls for marketing some \$200,000,000 in revenue bonds in time to permit a start in the fall.

Data then will be sought for two alternate possible routes.

Plans for another Northern Carolina toll road project were stymied at least temporarily, when the State Supreme Court ruled unconstitutional a 1949 act which created the Carolina-Virginia Coastal Highway Corp.

Ohio: While construction proceeds on the \$326,000,000 Ohio Turnpike, consideration is being given to the possibility of a branch from Toledo to Cincinnati.

Pennsylvania: While the State Turnpike Commission proceeds with the construction of a \$65,000,000, 33-mile Delaware River extension of the Pennsylvania Turnpike, Governor Fine suggested to the legislature the possible extension of the turnpike to northeastern Pennsylvania as an inducement to have heavy industry locate in the financially stricken anthracite region.

Enabling legislation already exists for other extensions of the Pennsylvania Turnpike, including one from a point near Hamburg to the Maryland state line.

Rhode Island: Governor Roberts asked the legislature to consider toll roads, earlier named a study committee. One legislative bill proposes a dual toll highway from the Connecticut line across South County and Narragansett Bay and Newport County to the Massachusetts line.

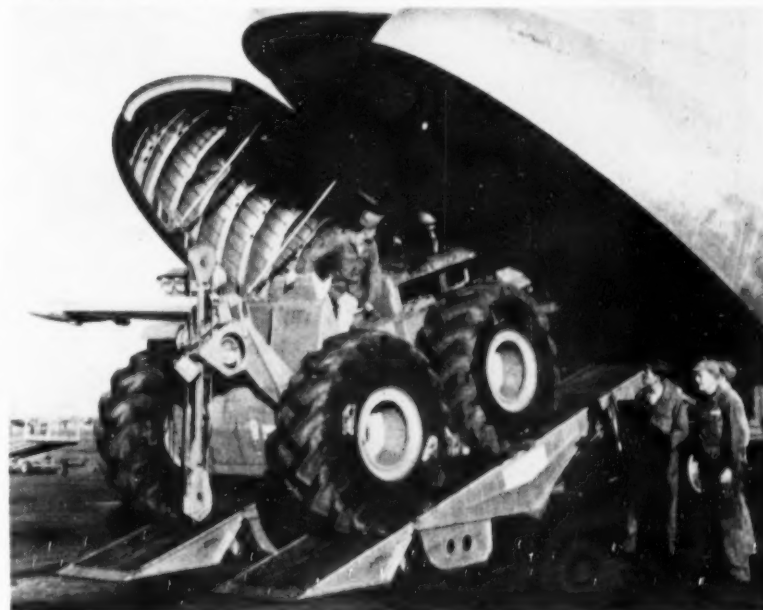
Texas: Creation of a toll road authority was recommended to the Texas legislature by Governor Shivers. One Texas legislative proposal calls for creation of a Dallas-Fort Worth Turnpike Authority, empowered to finance a \$31,000,000 highway. Other Texas reports include plans of the recently-chartered Sam Houston Turnpike Corp. for construction of a \$150,000,000, 276-mile toll highway from the Dallas-Fort Worth area to San Antonio.

Virginia: Engineering studies are being made for the Virginia State Highway Department to determine the feasibility of a toll highway from north of Richmond to south of Petersburg, and the toll road potential in the Washington metropolitan area of Virginia.

A law enacted late last year by a special session of the Virginia legislature gave the State Corporation Commission regulatory control over private turnpike corporations, including the authority to determine toll rates. The Corporation Commission granted the Old Dominion Turnpike Corp. a one-year extension from Feb. 20 in which to start construction of its projected 70-mile toll highway across southwest Virginia. The project is expected to cost between \$60,000,000 and \$70,000,000.

Washington: A toll highway from Tacoma to Everett has been advocated by the State Highway Commission and a state legislative interim committee on highways. The plan calls for creation of a State Toll Road Authority to handle the project.

Bulldozer air-lifted to Korea



★ A 34,000-lb. Tournadozer is shown here, backed up a loading ramp into a U. S. Air Force cargo plane. Seven such units were recently air-lifted to Korea from Japan to be used in finishing an airfield before freezing weather. This is the heaviest single piece of equipment yet handled by Combat Cargo Aircraft. (U. S. Air Force Photo)

Compressed air in industrial production

"Compressed Air Power in Industrial Production," prepared by the Committee on Engineering Education of the Compressed Air and Gas Institute, has recently been released. This pamphlet with 63 illustrations is the third in a series of engineering studies in the Institute's educational program for which it received the ATAE Award of Merit in 1952.

The first two pamphlets were: "Compressed Air Power," a general treatise on compressed air equipment;

Table 3. Number of Caulking, Chipping and Scaling Hammers That Can Be Operated By Various Size Compressors

(From "Compressed Air Power in Industrial Production")

Compressor Capacity (cfm) Air Pressure (psig.)	60		85		105		160		210		315	
	70	90	70	90	70	90	70	90	70	90	70	90
Caulking and Chipping Hammers												
1" str., medium chipping			6	4	7	5	11	8	15	12	22	17
2" str., medium and heavy chipping	4	3	6	4	7	5	11	8	15	12	22	17
3" str., heavy chipping	4	3	6	4	7	5	11	8	15	12	22	17
3" str., general chipping	3	2	5	4	8	5	14	9	15	10	27	18
light caulking and scaling	6	4	8	6	13	8	2	15	30	20	45	32
light and medium caulking and scaling	5	4	7	5	9	7	16	12	19	14	28	21
Scaling Tools												
light duty and boiler scaling tool	9	7	15	10	20	12	33	22	31	22		
heavy duty scaling hammer	11	8	17	10	25	15	40	26	40	23		



If repetition is any form of endorsement, the Jahn JT-409 Tilt Trailer is doing a good job for the Texas Highway Department. Only recently they purchased their ninth new 9-ton JT-409.

The JT-409 is a heavy-duty tilt trailer built for rugged treatment on all types of roads under the full gamut of climatic conditions. It would pay you to follow the lead of Texas by investigating this model as well as the full line of new Jahn Heavy Duty Trailers. Write for additional information by filling out and mailing the attached coupon.



PRESSED STEEL CAR COMPANY, INC.
JAHN TRAILER DIVISION
136th St. and Brandon Avenue Dept. R&S
Chicago 33, Illinois

PSC

Dear Sir:
Send me literature on the Jahn JT-409 Tilt Trailer or any other I have checked.

☐ Semi-trailers ☐ Heavy Duty Trailer Capacity.....

Name.....

Address.....

City.....State.....

and "Compressed Air Power in Construction," a comprehensive study of air-operated tools and equipment used in the construction industry. Both booklets have already gained wide acceptance in educational institutions, industrial plants, engineering organizations, government bureaus, and libraries.

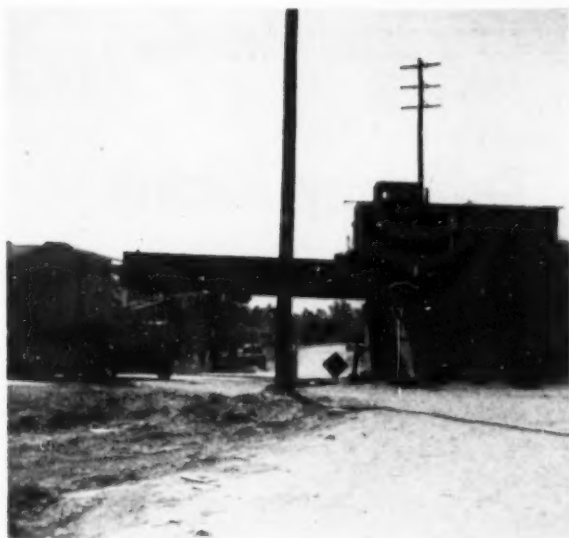
"Compressed Air Power in Industrial Production" is directed to designers, engineers and production men in industrial plants. The booklet discusses pneumatic tools and aids to production, so that these men may be better able to evaluate the usefulness of pneumatic equipment. In so doing, they will be in better position to design and/or install production equipment which will result in the most economical operations utilizing compressed air power.

Chipping and scaling, as an example of presentation, is covered as follows: classification of chipping hammers as to heavy, medium and light duty; design differences distinguishing various types with cross-section drawings and photographs illustrating differences; tabulated specifications of most popular type hammers; tabulation of air consumption of various sized hammers indicating the number of tools which can be operated by various sized compressors; and illustrations and discussions of the applications to which various hammers are best suited.

The 36-page, 8½ by 11-inch pamphlet (punched for standard 3-ring binders, is available at 25c per copy from the Compressed Air and Gas Institute, 1410 Terminal Tower, Cleveland 13, Ohio.

The pamphlet presents concisely, but comprehensively, the many uses of compressed air in industrial production: actuation by air cylinders, agitation of liquids, blast cleaning, chipping and scaling, clamping, drilling, forging, grinding, hoisting, instrument control, molding and die casting, ramming, riveting, screw driving and nut running, spraying, and others.

The text is supplemented by 13 tables of which the above is typical:



★ Last car over old structure



★ Motor cranes in position preparatory to lift

Cranes Replace Steel Bridge Span

IN the construction of a four lane underpass on U. S. 175 within the city limits of Dallas, the existing 40-foot girder was picked up by two cranes and walked to the "shoo-fly" location, which was too far removed from the main line to permit the usual move with a standard railroad wrecker.

As described in a Texas Highway Department bulletin, the through girder is a rather substantial structure, having been on the main line tracks of the T. & P. Railway and the T. & N. O. Railway to Sherman. The operation closed the railway main line four hours. Highway traffic was rerouted over two detours for three and one-half hours. Rail traffic is very heavy at this crossing, and highway traffic is approximately 15,000 v.p.d. Two motor cranes were used in the operation as pictured.

Uvalde Construction Company and John T. Leslie were the contractors. E. B. Calvin was in charge of the job for the Texas Highway Department.

• Tolls on the newly-opened 88-mile Turner Turnpike from Tulsa to Oklahoma City have been set at \$1.40 for cars traveling full distance. This decrease from the \$1.50 set in the bondholders' original agreement is a compromise, the consulting engineers having declined to approve a still lower figure sought by the Turnpike Authority.



★ View just prior to final position

Dragline Handles Cableway Bucket in Novel Hook-Up



★ Side view of the dragline, located on a mound of excavation and hooked up to a concrete transporting cable. Concrete is mixed and chuted into the grounded bucket immediately in front of the dragline

★ A crawler-mounted dragline functioning in place of a stationary winch, to handle concreting of an inclined tunnel entrance structure. Dragline previously excavated big hole shown



AN unusual assignment for a crawler-mounted excavator is pictured here. The machine shown, a Marion 362 dragline, was used on a Canadian mining project to lower concrete buckets for pouring an inclined tunnel structure involving unusually difficulties of work access.

The project was part of a mine entrance structure for the Gypsum Lime & Alabastine Co., at New Caledonia, Ontario. Johnson Brothers Co., Ltd., of Bradford, Ont., was the contractor.

The job called for the excavation of a slope 285 ft. long on a 28 per cent grade, leading to the tunnel entrance of a gypsum mine 75 ft. below the surface. The Marion dragline excavated 40,000 cu. yd. of earth to open up the tunnel and grade the sloping tunnel foundation.

Part of the excavated material was placed in a mound back of the hole, on the axis of the tunnel. The dragline was then traveled up on the mound and its tracks turned to a position perpendicular with the tunnel axis (see photo). The gantry was anchored to the ground behind the cab, with the boom facing toward the tunnel. A 500 ft. length of $\frac{7}{8}$ -in. cable was anchored at the ground directly above the tunnel entrance and attached to the dragline's hoist drum. A 400 ft. drag cable ($\frac{3}{4}$ in.) was then put on the unit, and a $1\frac{1}{2}$ -yd. concrete bucket with trolley suspended from the anchored cable.

With this set-up the foreman, Ken Torgerson, had in effect a small cableway system, all ready to handle the filling, transporting, spotting and dumping of concrete—an expedient that worked perfectly in the emergency created by the unavailability of a stationary winch.

Morse Appointed Manager. William B. Morse, formerly assistant to the manager of the Detroit, Mich., sales and service branch of Fairbanks, Morse & Co., Chicago, Ill., has been appointed manager, succeeding E. J. Hay, deceased.

Wahl Joins Martin Machine Co. Harold Wahl has been appointed chief development engineer of Martin Machine Co., Kewanee, Ill. He had been with the Hyster Co. for 17 years.



More of what you want in **CHEVROLET** Advance-Design Trucks *—and here are 4 powerful reasons why:*

NEW ENGINE POWER—TEAMED WITH LOWER COSTS! The improved Loadmaster engine with a new high compression ratio of 7.1 to 1, now delivers even more power. This great engine is standard on 5000 and 6000 Series heavy-duty and forward-control models—optional on 4000 Series heavy-duty models. In light- and medium-duty models the Thriftmaster engine offers traditional Chevrolet economy.

NEW STAYING POWER—FOR GREATER DURABILITY! Frames are heavier, stronger, more durable in all 1953 Chevrolet trucks. You'll find greater ruggedness and stamina. You'll find these trucks even brawnier and sturdier than Chevrolet trucks in past years—trucks that have long been famous for those very qualities. And this heavier construction brings new comfort and freedom from fatigue to drivers, too.

NEW BRAKING POWER—FOR QUICKER, SURER, SAFER STOPS! Two types of brakes on 1953 Chevrolet advance-design trucks provide greater stopping power and greater durability. "Torque-Action" brakes are standard front and rear on all trucks up to 4000 Series heavy-duty models. Extra-large "Torque-Action" brakes in front, "Twin-Action" type in rear are on Series 4000, 5000 and 6000 heavy-duty models.

NEW ECONOMY—LOWERS COST OF EVERY TON-MILE HAULED! Expect greater economy with Chevrolet trucks. New and greater stamina with extra gasoline economy cuts operating costs, maintenance costs in heavy-duty models with Loadmaster engine. *And these great trucks list for less than comparable models of any other make!* Chevrolet Division of General Motors, Detroit 2, Mich.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load. **POWER-JET CARBURETOR**—for smooth, quick acceleration response. **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement. **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **HYPOID REAR AXLE**—for dependability and long life. **TORQUE-ACTION BRAKES**—on light-duty and medium-duty models and on front of heavy-duty models. **TWIN-ACTION REAR BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models. **CAB SEAT**—with double deck springs for complete riding comfort. **VENTI-PANES**—for improved cab ventilation. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—for easier handling. **UNIT-DESIGNED BODIES**—for greater load protection. **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.



Tallamy Urges Flexible Highway Programs

IF a business recession should occur, even a mild one, state highway departments should be ready with long-range highway development programs designed for flexibility of execution. So said B. D. Tallamy, Superintendent, New York State Department of Public Works, speaking before the Association of Highway Officials of North Atlantic States which met March 4-6 at Atlantic City.

The programs should be designed to permit sudden acceleration if warranted by a deterioration of the nation's economic conditions, said Mr. Tallamy, who warned against delaying such programs until a recession occurred, and urged that planning, the acquisition of materials and equipment at reduced prices be pushed at state and local levels.

"Otherwise," he warned, "construction projects in other fields, where foresight has been applied, will benefit by the situation and the state highway departments that have been negligent will be left fumbling over readjustment of their programs which may take two or three years."

While not attempting to forecast business conditions, Mr. Tallamy said that conceivably the country might slide into a business retreat despite efforts of government and banking. "That is the time to have a telescope highway program ready, one that can immediately go into action and where seven years' work can be crowded into five or even less." The proposal would not merely provide employment and business stimulation but would give different U. S. regions better roads with the attendant benefits from improved transportation.

Concurring with Mr. Tallamy's thinking, another convention speaker, Ransford J. Abbott, state highway commissioner of New Jersey, said that the commercial structure of the country is based on a competition of areas, and that those areas having the best roads would be the least affected by a business slump.

Heavier Roadbeds

The Association meeting at Atlantic City was marked by a 12-man panel discussion of pavement design and construction policies of the eleven states (and D. of C.) in the North Atlantic Conference. While paving policies vary widely between the states, due to differences in climate, traffic, available materials (and engineering tradition and thinking habits) a common trend noted is the adoption

of very much heavier base and sub-base designs for arterial highways in all states.

Toll Under Federal Aid

Elimination of restrictions on Federal-aid funds so that they could be applied to toll road construction was urged in a resolution adopted by the Association. Federal highway funds are now restricted to free highways. The resolution would permit part of the over-all allotment to a state to be used to retire the principle of toll road bond issues.

Rehabilitation of existing roads will save huge sums to the public, said Henry TenHagen, deputy commissioner of public works, New York. Proper modernization made to salvage the investment in 5,000 miles of highways in New York state would save an estimated \$175 million, he said. This type of work, which makes existing roads safer enlarges their traffic capacity, can be done in one-third the time compared with entirely new construction.

Association officers for 1953 were

elected as follows: President, G. Albert Hill, Connecticut State Highway Commissioner; vice-president, John D. Robertson, Director of Highways, District of Columbia; secretary-treasurer, A. Lee Grover, secretary, New Jersey State Highway Department.

• **George C. Koss**, of Koss Construction Co., paving contractors, Des Moines, has been awarded the Des Moines Tribune 1952 Community Service award for the most valuable service to Des Moines in civic and welfare fields.

The award recognized his services on ten boards and committees of educational or charitable type, through which he has served his city since 1942. He has been the leader in Red Cross War Fund, Edmundson Art Foundation, Roadside Settlement House, and Animal Rescue League. He is now serving as vice-president of the Chamber of Commerce, chairman of the City Plan Commission, chairman of the Community Chest Board, and trustee of Drake University.

• **Scott P. Hart**, long-time employee of the Montana State Highway Department, has been re-named State Highway Engineer. He replaces Troy Carmichael who held the post since 1950. Mr. Hart who has served as a member of the Alaska Highway Commission since 1950 was previously state highway engineer, having advanced to that post through various positions in the department since 1923.

"Mr. Public Roads" to Retire

(From "The Federal Diary," Column by Jerry Kluttz, Washington Post, March 10, 1953)

MR. PUBLIC ROADS, otherwise known as Thomas H. MacDonald, is retiring from Government after a distinguished career.

He was appointed Commissioner of Public Roads in 1919 and he has been in his present post for nearly 34 years, far longer than anyone else has served in the Government in a major policy-making post.

There has never been another "Commissioner" of Public Roads. MacDonald has headed the bureau since it became a power after the Federal aid program to highways was voted.

MacDonald has directed the spending of more than six billion dollars on roads; he is known the world over and is highly regarded as the top highway administrator. He built the Alaskan highway and is helping to build the Inter-American highway. He also has helped to build thousands of miles of State highways. The Public Roads agency had spent only five million dollars in the 35 years of its existence before MacDonald's appointment.



★ Thomas H. MacDonald

MacDonald reached the mandatory retirement age of 70 more than a year ago, but former President Truman extended his service. He'll be 72 in July. He plans to retire at the end of this month. Several other top roads officials may retire with him.

N. Y. Thruway Contractors Begin Record Season

\$194 million in contracts in force as of March 1. Remaining sections of 500-mile New York to Buffalo route expected to be awarded by May 1

FOLLOWING an exceptionally mild Winter in up-state New York, scores of contractors and subcontractors were getting set early in March to swing into action on the New York Thruway construction program. Lettings were held at frequent intervals all winter, and by March 1 some \$194,219,712 in contract jobs were on the books, with 47 miles more advertised. The Thruway Authority officials expected to have all remaining sections under contract by May 1.

As the new year began, 55 miles of the 500-mile thruway main line was completed, and 234 miles of express roadway and 248 bridges and grade separation structures were under construction, with much of the work well along toward completion. Construction representing \$36 million by 43 prime contractors was completed during 1952.

Following are some of the facts on this unprecedented highway project, as gleaned chiefly from the Third Annual Report (for 1952) of the New York State Thruway Authority.

Financing of the road is through revenue bonds secured by state credit and underwritten by a banking group at the exceptionally low interest of 1.10 per cent. Bonds are to be issued as needed to finance construction, with completion of the main route planned for the end of 1954. A 150-mile section (Utica to Batavia) is scheduled for opening to toll collection this year.

The 1953 year has the "green light" all around, notes the report, with adequate supplies of cement, steel, and other materials assured following a meeting of Authority officials and producers.

Along with stepping up construction, the Authority in 1952 also made significant progress in planning traffic operations. The Authority is blazing new trails in plans to provide safe, convenient travel. Thruway signs, communications, toll collection, service facilities, maintenance, and safety were given extensive study, with some of these phases still under investigation.

In order to expedite road design, the Thruway was divided into 66 subdivisions. Forty-two of these were assigned to the Department of Public Works staff for design, while 34 consulting engineering firms (see tabulation) were selected to prepare plans for the remaining 34 sections.

As a result, despite the engineer shortage felt over the nation, the 1952 year saw remaining field surveys completed; and roadway design work was advanced from 29 per cent done on January 1, 1952, to 89 per cent done at year's end. The consultants, working under the direction of the public works district engineers, accomplished designs for \$205 millions in work.

Bridge Design Problems

The design of the Thruway bridges created another serious problem to the Authority, notes the annual report. In order to eliminate all crossings at grade, 525 structures are required, or better than one per mile of main roadway. These structures include 370 highway grade separations, 55 railway separations, 90 stream

bridges, 20 structures spanning combinations of rail, road and stream and 3 pedestrian overpasses.

The structures represent varied designs to meet a wide range of site and soil conditions, and include slab, beam, girder, rigid frame, truss and arch. Department and consultant forces completed \$50 million in bridge designs during the year.

The \$35 million dollar Hudson River crossing between Tarrytown and South Nyack was given a start, with the awarding of approaches and the much-publicized floating foundations awarded to contract. Redesign of the proposed tied steel arch main span was necessitated by failure of contractors to offer bids at a late-winter letting.

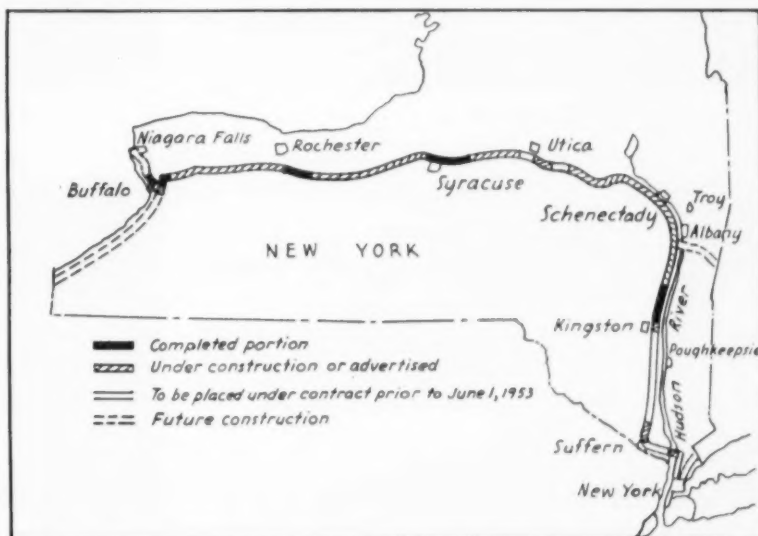
Interchange Design

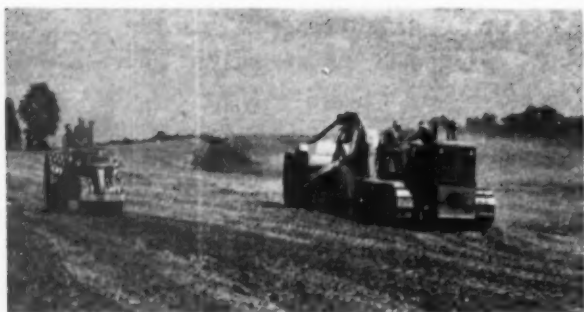
The Thruway main line will have 35 control type interchanges with toll stations. The interchanges will be of the "trumpet type," necessitated in lieu of cloverleaf type because of toll

(Continued on page 71)

Some of the Largest N. Y. Thruway Jobs

Contractor	Contract Amount	Location	Description of Work	Centerline Miles
Merritt, Chapman & Scott	\$11,772,520.00	Hudson River Bridge	Foundation	0.92
B. Perrini & Sons, Inc.	10,972,513.60	Randall to So. Amsterdam	Grading, paving & structures	13.34
Johnson, Drake & Piper, Inc.	8,247,118.52	Gibson Rd. to Seneca Co. line	Complete construction	12.70
B. Perrini & Sons, Inc.	7,948,185.50	Fort Plain to Randall	Grading, paving & structures	8.90
Lane Const. Corporation	7,096,781.20	Normanskill Creek to Greene County line	Paving & structures	11.56





★ Grade nearing completion. Note rolling terrain typical of Western New York



★ Grid roller in operation to help pulverize and compact material with the top lifts

How Dougherty Moved 300,000 c.y. Monthly on Thruway



★ Two of the four scrapers which produced the bulk of the yardage

SO much is happening along the big New York State Thruway project this year that it is difficult to put the finger on any one outstanding activity. However, contractors will be interested in the speedy, earthmoving performance of Al Dougherty & Co., of Indianapolis, Indiana, on a 7.73 mile project in Genesee County, New York. This firm subcontracted the earthmoving from Johnson, Drake & Piper, Inc., New York City, prime contractors on the section which is designated as contractors OT 52-8.

This job, involving a dual highway grading section in rolling prairie country, required 1,800,000 sq. yd. of



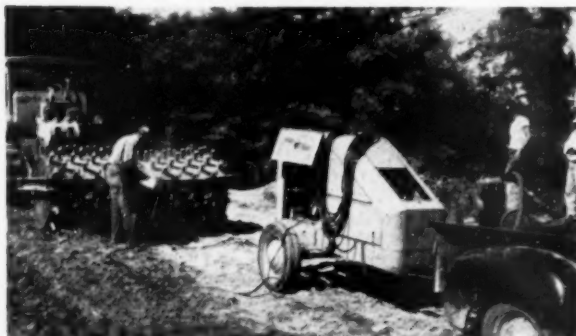
★ A 3-wheel roller with special earth compaction treads used on this project



★ One of several portable flood-light outfits, this one mounted on a welder



★ Tamping backfill over the electrical ducts



★ This portable arc welding outfit was "all over the place"



★ Concrete pipe culverts were caulked with oakum and bitumin



★ Ditching for electrical conduits under the right-of-way

earthmoving of which 1,300,000 sq. yd. was borrow. After preliminary work, including a start on culvert installation, the Dougherty organization began in earnest on July 20. 600,000 cu. yd. was moved in the interval from July 20 to September 18. Six Euclid single-engine scrapers (increased to 9 units Sept. 1) with two Allis-Chalmers AC20 push tractors, handled the bulk of the yardage.

Dougherty's equipment included 9 Euclid scrapers with single Cummins 275 engines; 2 Allis Chalmers AC-20 push tractors; 2 Caterpillar D8 tractors with dozers; 3 LeTourneau 15 yd. scrapers (2 D8's and 1 AC-29 pulling); 4 Caterpillar No. 12 graders; 2 International TD-18 tractors; 1 Huber roller with earth compaction treads; 1 Hyster grid roller (TD-18 pulling); 1 Caterpillar D4 tractor pulling 1 Bros pneumatic tired wobble roller; 1 Northwest ¾ yd. drag-

line; 1 Gradall machine on culvert trenching and bank trimming; Schramm 105 compressor; Westinghouse Flexarc welder.

The Dougherty organization has re-

cently had nearly 100 pieces of equipment up in Newfoundland on an air base, and some of the units were moved to this project. Bob Carpenter, was superintendent on the Thruway.



★ Culvert trenches were excavated after the grade was completed

(Continued from page 69)

plaza considerations. A problem was created by the conversion of the project to a toll road after several cloverleaf type interchanges had been built or begun for the originally conceived freeway. These have been redesigned. The "trumpet type" designs, requiring extensive land area for long-radius ramps of latest design, will cost a minimum of \$500,000 each, with at least \$50,000 annually required for 24-hour-a-day operation of the toll plaza. For this reason of high cost, the number of interchanges was reduced from the 100 originally planned. The subject required considerable engineering study to assure that communities and main arterial highway routes along the Thruway will have proper connections.

Some 14 free interchanges of the initial cloverleaf type will remain on the Thruway at points where minor traffic volume is expected to enter or exit.

Location Problems

The location of the Thruway is a chapter in itself, as described in the Saturday Evening Post issue of March 7 ("What a Highway They're Building!" by David H. Beetle). Since

the only natural break through the mountains to the west is the Mohawk Valley, the pioneers concentrated railroads, highways and New York State Barge Canal within the confines of this valley. The narrow valley is also dotted with cities and towns. The adopted route requires relocation of the barge canal at five points, and moving of the Mohawk River itself at a point west of Utica. Problems encountered in crossing the Monte-

zuma Swamp in west-central New York were described in Roads and Streets, January, 1953, in an article by William Robinson.

Each of the dual roadways is designed to an independent grade line, with widely varying median widths over most of the route, as a means of economy in grading quantities and greater freedom in the solution of problems of location and right of way. Minimum mall width is 20 ft.

The Big Push! How Contract Awarding Has Progressed on the New York Thruway

Contracts Awarded or Advertised, September 4, 1952 to March 26, 1953

Month	No. of Contracts	Contract Miles	Centerline Miles	Contract Amounts or Estimates
September, 1952	5	21.50	13.14	\$10,309,577.10
October, 1952	9	53.67	21.68	31,568,020.90
November, 1952	4	32.94	10.81	15,665,050.21
December, 1952	10	55.10	22.31	25,414,263.42
January, 1953	4	29.67	20.38	15,598,197.00
February, 1953	5	48.22	30.53	28,547,004.95
March 5, 1953	4	30.25	16.45	15,314,718.40
Advertised for March 26	5	40.35	27.57	32,536,000.00*
	46	311.70	162.87	\$174,952,831.98

*Engineers' Estimate

Consulting Engineers Participating in New York State Thruway Program (As of August 6, 1952)

Consultant	Dist. County	Section	Nature of Work	Remarks
Ammann & Whitney New York City	2 Oneida	6—Lowell to Westmoreland	Design	
" "	2 Oneida	7—Westmoreland to Whitesboro	Design	
" "	2 Oneida & Herkimer	9—Utica West City Line to Schuyler	Structures	
" "	4 Genesee	4&5A—Route 63 to Route 33	Structures	
" "	4 Genesee	5B&5A—Route 33 to County Line	Structures	
Andrews, Clark & Buckley New York City	5 Niagara	N8—Between G. I. Bridges (Niagara Section)	Survey & Design	With Krehbiel & Krehbiel
" "	8 Ulster & Orange	5—New Paltz to Newburgh	Survey & Design	
" "	5 Erie	9—Harlem Ave. to William St.	Inspection	
Brown & Blauvelt New York City	2 Montgomery	12B—Indian Castle to Caroga Creek	Design	
" "	2 Herkimer	10B—1 mi. E. of E. Schuyler to Ft. Herkimer	Survey & Design	
" "	2 Herkimer	10A—Burch Creek to 1 mi. E. of E. Schuyler	Survey & Design	
Briggs, Robert W. New Rochelle	8 Westchester	NE2—Post Road to Larchmont (N. E. Section)	Design	
" "	8 Westchester	NE3—Larchmont to Conn. State Line	Survey	
" "	8 Westchester	NE7A—N. Y. C. Line to Post Road	Completion of Plans	
" "	8 Westchester	NE3—Larchmont to Conn. State Line	Design	
Campbell, John R. Buffalo	5 Erie	12—Cleveland Drive to Union Road	Design	
Capital Engr. Co. Rochester	4 Genesee	1&2—Erie Co. Line to Slusser Road	Inspection	
Clarke, Rapuano & Holleran New York City	5 Erie	N6—Porter Ave. to Ontario St. (Niagara Section)	Design	With H. J. Senior
" "	8 Orange	7—Harriman to Suffern	Survey & Design	
Collins, A. Stuart Buffalo	5 Chautauqua	4—Fredonia to Route 20	Design	
DeLeuw & Brill New York City	1 Greene	6&7—Albany Co. Line to Route 23A	Design	
Duchscherer, Chas. E. Buffalo	5 Erie	15—Ransom Road to Genesee Co. Line	Survey & Design	With Leon Wendel
Edwards, Kelcey & Beck New York City	8 Westchester	11—Tuckahoe Road to N. Y. C. Line	Survey & Design	
" "	8 Ulster	4—Whiteport to New Paltz	Survey & Design	
" "	5 Erie	N7—Ontario St. to So. G. I. Bridge (Niagara Section)	Survey & Design	With H. J. Senior
Farkas & Barron New York City	4 Genesee	1,2&3—Erie Co. Line to Route 63	Structures	
Frankland & Lianhard New York City	1 Albany & Greene	3,4&5—Western Ave. to Greene Co. Line	Structures	
" "	3 Onondaga	8—Route 370 to Madison Co. Line	Interchange	
" "	1 Albany	3A—Delaware Ave. to Normanskill Creek	Interchange	
Fruchtbaum, Jacob Buffalo	5 Erie	13—Union Road to Transit Road	Design	With H. J. Senior
Ginnity & Morrison Rochester	4 Ontario		Survey	
" "	4 Gen. & Ont.	Various	Plotting Survey Data & Preparing R. O. W. Maps Structures	
Greenhut & Taffel New York City	4 Gen. & Mon.	6A,6&7A—Route 33 to Reed Road	Structures	
Hardesty & Hanover New York City	5 Erie	N2—E. City Line to Fillmore Ave. (Niagara Section)	Gen. Plan	With Nussbaumer, Clarke & Velsky
" "	5 Erie	N3—Fillmore Ave. to Ellicott St. (Niagara Section)	Gen. Plan	
Harris, Frederic R. New York City	8 Orange	6—Newburgh to Harriman	Survey & Design	
" "	1 Schenectady	1—Mont. Co. Line to Albany Co. Line	Survey & Design	
Hirschtahl & King New York City	3 Onondaga	8—Route 370 to Madison Co. Line	5 Structures	
Knappen, Tippetts, Abbott New York City	5 Erie	14—Transit Road to Ransom Road	Survey & Design	
" "	8 Westchester	10—Route 9 to Tuckahoe Road	Survey & Design	
Krehbiel & Krehbiel Kenmore	5 Erie	8—South Park Ave. to Triple Inter.	Survey	
" "	5 Niagara	N8—Between Grand Island Bridges (Niagara Section)	Survey & Design	With Andrews & Clark
Lufser, Edward P. Buffalo	5 Erie	N4—Main St. to Court St. (Niagara Section)	Design	
Madigan Hyland New York City		Traffic & Economic Survey		
" "	8 Rockland & Westchester	9—Hudson River Bridge	Study	
" "	8 Rockland & Westchester	9—Hudson River Bridge	Design of H. R. Bridge & Approaches	
" "		Toll Collection System	Study	
" "	2 Montgomery	14—Randall to So. Amsterdam	Design	
McFarland, Wm. H. Binghamton	2 Herkimer	10C,11A&12A—Fort Herkimer to Indian Castle	Survey & Design	
" "	2 Montgomery	12B—Indian Castle to Caroga Creek	Survey	
" "	2 Montgomery	12D&13—Fort Plain to Randall	Survey & Design	
" "	2 Montgomery	12C—Caroga Creek to Fort Plain	Survey	

Consulting Engineers Participating in New York State Thruway Program (As of August 6, 1952)

Consultant	Dist.	County	Section	Nature of Work	Remarks
Nussbaumer, Clarke & Velzy Buffalo	5	Erie	N2—E. City Line to Fillmore Ave.	Gen. Plan	With Hardesty & Hanover
" "	5	Erie	N3—Fillmore Ave. to Ellicott St.	Gen. Plan	
O'Donnell, J. P. New York City	2	Oneida	5—Verona to Lowell	Design	
Parsons, Brinckerhoff, Hall, McDonald & Waterbury New York City	8	Rockland	8—Suffern to Route 303	Survey & Design	
Pratt, Roy Springville	5	Erie	6—Indian Reservation to Evans Ctr.—Eden Road	Survey	
" "	5	Erie	7—Evans Ctr.—Eden Road to Camp Road	Survey	
Seelye, Stevenson & Value New York City	4	Monroe	7&8A—Reed Road to East River Road	Structures	
" "	3	Seneca	2&3—Stone Church Road to 3/4 mi. West of Montezuma	Structures & Inter- change	
" "	4	Genesee	3—Town Line Road to Route 63	Structures	
Senior, Bissell & Bronkie Williamsville	5	Erie	N6—Porter Ave. to Ontario St. (Niagara Section)	Survey & Design	Design with Clarke, Rapuano & Holleran
" "	5	Erie	N7—Ontario St. to So. G. I. Bridge (Niagara Section)	Survey & Design	With Edwards, Kelcey & Beck
" "	5	Erie	13—Union Road to Transit Road	Design	With J. Fruchtbaum
Steinman, David B. New York City	2	Oneida	8—Whitesboro to Ulrica W. C. Line	Structures	
Sells, Charles H. New York City	1	Schenectady	Mohawk Thruway to Circle (Schenectady Spur)	Design	
" "	1	Albany	2—Schen. Co. Line to Western Ave.	Survey & Design	
Urquhart & Davie Scarsdale	3	Seneca	1&2—Ontario Co. Line to Tyre	Structures	
" "	3	Cay. & Onon.	Various	Interchanges	
" "	4	Ontario	Various	Interchanges	
Wendel, Leon Lockport	5	Erie	15—Ransom Road to Genesee Co. Line	Survey & Design	With Chas. F. Duchscherer

Pavement marking materials Bulletin 57

"Pavement Marking Materials, Bulletin 57," Highway Research Board 2101 Constitution Ave., Washington 25, D. C.

The demand has grown to such proportions that enormous expenditures are necessary annually for this one item. Nearly 2½ million gallons of traffic paint were used in 1950, of which nearly half of all the white and two-thirds of the yellow paint (totaling approximately 1¼ million gallons) were reflectorized with glass beads. As a result of these expenditures there has been a constant effort to develop new procedures.

This bulletin contains 10 papers presented at a Symposium on Pavement-Marking Materials and Methods during the Thirty-First Annual Meeting of the Highway Research Board. These papers treat the development of tests, procedures, formulations, and specifications of traffic paints as currently used throughout the country. An annotated bibliography with 234 references, extending from 1924 to 1952 is included.

Concrete curing by the Hunt process

A new 8-page folder giving facts about the Hunt Process of curing concrete has been issued by Hunt Process Co., Inc., 7012 Stanford Ave., Los Angeles 1, Calif. It is a useful and informative folder on membrane curing. Descriptions and illustrations of the use of four Hunt concrete curing compounds are given and information is included on where and when these should be used.

Snow traps eliminated with scrapers in county program

Removing snow traps from all farm-to-market roads and placing every farm home on a gravel road is the long-range project of Montgomery County, Iowa, road commission.

After test had shown that steep-sloped, low-banked, narrow ditches were the major causes of drifts, officials decided to regrade, re-elevate, and reslope to 3 to 1, or even more, every secondary road in the county. Two International TD-18A crawler tractors with scrapers were used for most of the earthmoving work.

Although the plan meant expanding the right-of-way to 66 ft., the move was met with the complete ap-

proval of farmers who saw in the project the end to snow-created transportation problems. With the flattened slopes directing most of the snow in deepened ditches, farmers no longer need to set snow fences. The small amount of snow that lodges on the roads instead of in the ditches can easily be removed by truck-mounted snow plows.

When earthmoving is completed, the road is surfaced with 1,300 tons of gravel to a mile, the rock cost being split 50-50 between the county and farmers.

In addition to county crews, private contractors have been hired to speed completion of the program, which calls for the improvement of over 562 miles of all-weather roads.



★ How snow traps are removed in the Montgomery County, Iowa, farm-to-market route development program

Oregon Primary Road Relocation

BASED ON ECONOMIC STUDIES

Functional obsolescence as well as physical deterioration was considered in planning studies made as a basis for modernization of the Grants Pass to Roseburg section of Oregon, U. S. 99. Heavy excavation was required to provide a third lane on the right side of ascending grades and a 4-lane pavement over summits, the entire design of this mountain section being based on the truck-laning principle to permit fast traffic to pass slow-moving vehicles. Elimination of queues of impatient motorists on grades will do much toward accident prevention and likewise expedite traffic movement, notes R. H. Baldock, State Highway Engineer of Oregon, in commenting on this project.
—Editors.

DURING the early years of road-building, little consideration was given to the economic principles of highway transportation. As a result, many highways now are in a condition necessitating very much larger expenditures than those originally made, for revision and relocations, widening and truck-laning.

Roads become inadequate or unsatisfactory in two ways: by structural deterioration, and by functional obsolescence. Functional obsolescence is that condition of a road wherein the road unit has become outgrown by its own traffic. Functional obsolescence is evidenced by such tell-tale signs as structures not adequate for present vehicular unit weights; alignment and roadway widths which have become inadequate for existing traffic densities and speeds and vehicle widths and

lengths; unfavorable gradient conditions; and improper riding qualities of the surface. An attempt to define the word "obsolescence" might be: An increasing inability of the road to accomplish safely and efficiently those additional service requirements that have developed since its construction.

Obsolescence, along with structural deterioration, constitutes a prime factor of service life. The degree and manner in which each may operate will vary within wide limits, depending upon original designs, climatic conditions, traffic developments, etc. There is no accurate, precise manner of determining future service life value for any individual case. Data regarding past performances in this regard are very helpful, but when analyzed do not furnish an unfailing criterion. At best, the data can be

used only to remove the prediction of service life values from the realm of conjecture into that of intelligent estimate.

However, working with available data and following known principles of economics, service life value figures have been determined for particular roads in Oregon and used successfully. It is not within the purview of this article to go into the derivation of the formulas or to explain the step-by-step procedures involved. A thorough study and analysis of this question has been published in "The Economics of Highway Planning," Technical Bulletin No. 7, Oregon State Highway Department. Available on request to R. H. Baldock, State Highway Engineer, Salem, Oregon.

Suffice it to say here that working with cost factors, income factors, service life and benefit factors in the economic analysis, the road administrator can evaluate the projected improvement, and determine what design policies are justified.

Obsolescence is the big variable and the one factor that shortens the service life value of a road more than the other factors. It is the one factor on which as much information as possible should be obtained.

It was such an analysis that determined the reconstruction of U. S. 99.

★ Flatbed-mounted air compressor on the Glendale-Wolf Creek section; McNutt Bros. operation. Holes are dynamite loaded and plugged with wood stumps for identification

★ Another type of McNutt Brothers operation. A Lima 802 shovel with an Esco rock dipper loading a Tournatrailer at the summit of the big cut



The portion of this road from Grants Pass to Canyonville, discussed here, has been truck-laned on all uphill grades. The last section was completed during the 1952 summer. Following is a comparison of the old and the new locations from Canyonville to Jumpoff Joe Creek:

Description of Projects

Canyonville Section

1.85 miles grading and paving
2 grade separation structures
Awarded November 9, 1950
Contractor Roy L. Hauck & Son
Estimated completion date June 30, 1952
Estimated project cost \$488,000

North Unit, Canyonville-Johns

Forest Highway Project, U. S. Bureau of Public Roads Contract
2.4 miles grading and paving
Awarded September 27, 1950
Contractor Carl M. Halvorson
Estimated completion date June 30, 1952
Estimated project cost \$915,000

South Unit, Canyonville-Johns

Forest Highway Project, U. S. Bureau of Public Roads Contract
6.47 miles grading and paving
Awarded September 25, 1949
Contractor Kuckenberg Construction Co.
Completed September 8, 1951
Estimated project cost \$1,327,000

Johns-Glendale Junction

7.16 miles grading
Awarded September 24, 1946
Contractor R. A. Heintz Const. Co.
Completed April 13, 1948
Total project cost \$340,000

Glendale Junction-Wolf Creek

5.54 miles grading and bridges
Awarded September 24, 1946
Contractor McNutt Bros.
Completed September 28, 1948
Total project cost \$978,000

Cow Creek and Quines Creek Bridges

2 concrete bridges
Awarded October 26, 1946
Contractor Sleeper and Keyes
Completed November 1, 1947
Total project cost \$71,000

Grave Creek-Jumpoff Joe Creek

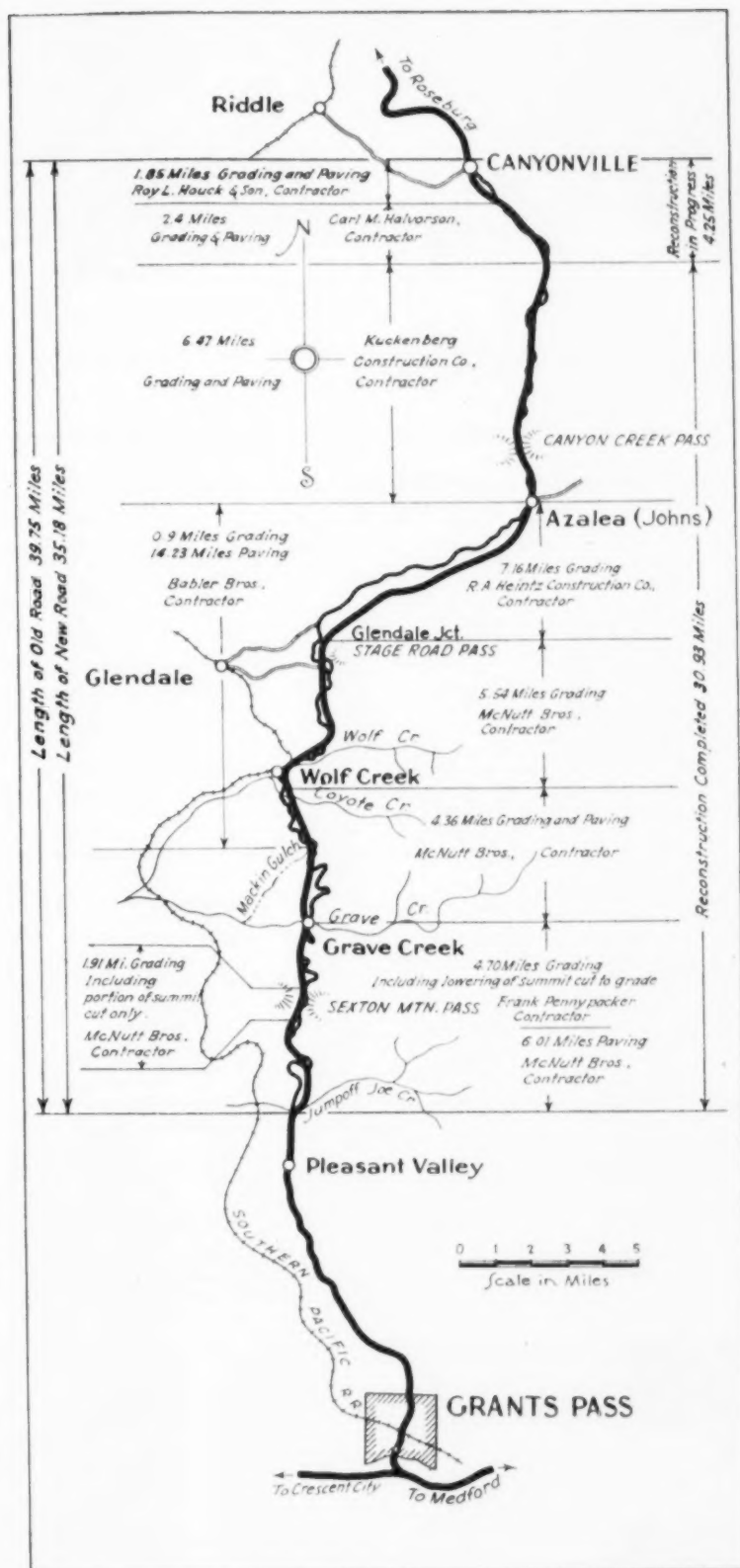
6.01 miles paving
Awarded April 14, 1942
Contractor McNutt Bros.
Completed October 11, 1943
Total project cost \$178,000

Coyote Creek-Grave Creek

4.36 miles grading and paving and 2 bridges
Awarded May 15, 1945
Contractor McNutt Bros.
Completed November 2, 1946
Total project cost \$642,000

Johns-Mackin Gulch

0.9 miles grading
14.23 miles paving
Awarded February 9, 1949
Contractor Babler Bros.
Completed October 8, 1948
Total project cost \$294,000



★ Relocation of U. S. 99 in Oregon, between Canyonville and Jumpoff Joe Creek. Old location shown by lighter line



★ On the Johns-Macklin Gulch section, Babler Bros., contractor; Risley Bros., subcontractors on paving aggregate production. Picture shows Risley's built-up three unit plant

Comparison of Old and New Locations, U. S. 99, Oregon

Canyonville to Jumpoff Joe Creek

	Old Location	New Location	Savings
Distance in miles.....	39.75	35.18	4.57
Curvature (Degrees of central angle).....	20,216	2,917	17,299
Curvature (Maximum degree of curve).....	60	10	
Number of curves.....	492	62	430
Number of equivalent complete circles.....	56	8	48
Sexton Mt. Summit Elevation (feet).....	2,046	1,956	90
Width of roadbed (feet).....	20-22	42-54*	
Width of paving (feet).....	18-20	22-46*	
Period of construction.....	1920-1923	1941-1952	

* The wider roadways (a total of approximately 3 miles) were built over the summits at Canyon Creek, Stage Road and Sexton Mt. Passes.

Quantities involved in reconstruction of Canyonville-Jumpoff Joe Creek Section of Pacific Highway:

Excavation.....	5,557,000 cu. yds.
Surfacing rock.....	201,000 cu. yds.
Asphalt in pavement.....	5,607 tons

Construction Costs:

New Location	
Grading and bridges.....	\$4,869,000
Surfacing and paving.....	965,000
	<hr/>
	\$5,834,000

Old Location	
Grading, bridges and paving.....	\$2,278,000

	Year	Year
Traffic:	1923	1950
Maximum daily traffic.....	775	5,700
Average daily traffic.....	400	2,800

Grave Creek-Jumpoff Joe Creek

4.70 miles grading
Awarded July 2, 1941
Contractor Frank Pennypacker
Completed September 12, 1942
Total project cost \$314,000

Sexton Mountain Section

1.91 miles grading
Awarded November 12, 1940
Contractor McNitt Bros.
Completed October 25, 1941
Total project cost \$287,000

175-ton crusher to be moved across Hudson

The interest of contractors who have heavy hauling problems will be centered in a very unusual moving job to take place this Spring in New York State. The Nicholson Company of New York City has a \$600,000 contract with the New York Trap Rock Corporation to remove one of the largest stone crushers ever built.

This 350,000-lb. crusher, part of a large quarrying operation at Cold Spring, N. Y., is to be dismantled and taken across the Hudson River to a new location at Haverstraw, N. Y.

Rather than haul directly across the river by scows, involving shoring operations on both sides of the river, the parts are to be moved on trailers and trucks down to the George Washington Bridge in New York City and back up the river on the other side.

★ Heavy cuts and fills in rock and mixed materials characterize the various sections. (Left): Glendale-Wolf Creek section, showing some of McNitt Bros. equipment. (Right): Completed 4-lane section of McNitt Bros. job, looking south from the summit of Sexton Mountain.



Educators Discuss Engineer Shortage

Contractors as well as highway department leaders will find "food for thought" in the ideas brought out at Northwestern University's recent College-Industry Conference.

WHAT'S to be done about the critical gap between American industry's increasing demands for engineers and the declining supply of graduates from engineering schools?

This was the problem considered by more than 300 educators and industry representatives, meeting at Northwestern University's Technological Institute recently, for the school's fifth annual College-Industry Conference.

Clarence E. Deakins, dean of students, Illinois Institute of Technology, pointed out that industry and the schools are presented with these key facts: each year the nation needs, for replacement alone, an estimated 30,000 new engineers. But in June, 1953, colleges are expected to graduate but 24,000 with this number declining to 19,000 in 1954 and to 17,000 in 1955.

Discussing the problems involved in recruiting talented young persons for the engineering profession, Deakins said that "industry itself is in direct competition with colleges for the high school graduate."

Because of the already serious shortage of engineers, Deakins said, industry and the colleges "must impress upon our selective officials the great tragedy that will befall our future national security and welfare if they strip the engineering schools of a large proportion of their student body."

As two parts of a suggested six-point program to increase the number of engineering students, Deakins urged that there be earlier identification of engineering aptitudes and interests among secondary school students, and that industry increase its scholarship funds for talented students now lost to industry because they cannot afford an engineering education.

This latter suggestion was seconded by Prof. Kurt F. Wendt, University of Wisconsin, who said industry could encourage able but financially embarrassed youths to enter the engineering field through a freshman scholarship program.

"Scholarships are being made available principally to junior and senior students," he said, "but the opportunities for entering freshman are quite limited." Wendt added that industry also could help students to earn their way by increasing the number of openings wherever possible for part-time and summer employment.

Skilled Aids Needed

Training and using of skilled assistants is one way to beat the engineer shortage, it was emphasized by Titus G. LeClair, manager of engineering for Commonwealth Edison and Public Service Company of Illinois. He said that requiring an engineer to handle all the details of his job is "our greatest source of wasted engineering talent."

"The obvious answer to this problem is to relieve the engineer of his paper work and other non-technical activities by giving him the help of a technical assistant, draftsman, clerk, or perhaps all three," LeClair said.

He told the engineers and educators, who travelled here from 25 states, that "the technical assistant might be a Technical Institute graduate or have one or two years of college. With this type of skilled assistant, the engineer is able to do the engineering without going on to do the 'red tape.' Consequently, the 'scarce' engineer can turn to other assignments quicker."

Appealing to employers to alter their organizations to absorb this type of technician, LeClair asserted the graduate engineer can increase his working effectiveness at least 10 to 15 per cent if surrounded by dependable technicians who readily grasp his form of communication.

"Not only can the engineers work more effectively," LeClair pointed out, "but they are better satisfied when they feel their technical skills are being usefully employed and that the

opportunities for advancement are better.

"By the same token, the technical assistant or clerk who didn't have the opportunity to get a college education is happy to have the chance to work with the engineer who can help him further his training in work of his liking."

LeClair's stand was echoed by E. W. Seeger, vice-president of Cutler-Hammer, Inc., Milwaukee. Seeger, speaking from the viewpoint of the registered professional engineer, said that the "best immediate solution for the engineering shortage is better utilization of engineers presently available." But he cautioned that if the number of engineering aides, assistants and technicians is materially increased "we should be certain that these people are properly classified so the progress made so far in the recognition of engineering as a profession is not lost."

George A. Sievers, industrial psychologist of the Industrial Engineering Institute, Milwaukee, stressed the importance of being able to complete a job, not just start it, and the need for engineers to be conscious of their responsibility in cooperating with others.

"Calculus and mechanics may be prime requisites," he said, "but the engineer cannot do anything unless he knows how to work with people, his boss, his associates and the people working under him." Education has a partial responsibility in developing this philosophy, Dr. Carl W. Condit, assistant professor of English and Humanities at Northwestern, told the group.

"We know that specialization, as exact and thorough as it can be, is a necessity in the profession of engineering."

(Continued on page 85)

Working Engineer Should Broaden

The individual engineer has a responsibility along with industry and the schools in helping overcome the acute shortage of trained engineers, it was pointed out at the Fifth College-Industry Conference at Northwestern University. The working engineer will be more effective if he:

1. Acquires good personal habits and an understanding of personal motivations;
2. Keeps abreast of technological development by taking advantage of post-graduation educational opportunities;
3. Appreciates the role of engineering in light of its responsibility to humanity generally;
4. Individually supports the efforts of industry, professional societies, and the schools in their efforts to train more technicians.

FOR YOUR EARTHMOVING EQUIPMENT



A Preventative Maintenance Routine that Won't Fizzle Out

This practical, simple system eases paper work. Give it a try and it will save you money, says this manufacturer.

By George M. Perry

Service Manager, The Euclid Road Machinery Co.

NOBODY disputes the fact that Preventive Maintenance for Earthmoving Equipment is a paying proposition. Those who have practiced it for any length of time report substantial savings on repair bills and considerable increase in equipment availability.

Why then are there so many contractors and industrial users who do not practice Preventive Maintenance?

At first glance, it is difficult to understand why a successful, clever businessman will spend tens or hundreds of thousands of dollars for fine equipment, and then fail to take good care of it. Often the same man will take great pride in maintaining his home, car, shotgun, or other articles of less value. Then why doesn't he do the same for the equipment that is to make money for him?

We at Euclid have been puzzled by that question and decided to find the answer.

Easy to Keep Up

Actually, there turned out to be not one answer, but three answers:

- (1) Preventive Maintenance Programs are difficult to set up.
- (2) They take "too much" paper work and office work.
- (3) Often, they will eventually "fizzle out."

Of these three, only Number 1 is fully justified—with proper planning, the other two need not be true.

Convinced that most equipment users would be quick to adopt a workable program that is simple in operation and takes very little time, Euclid engineers set out to plan such a program.

It consists of a set of forms designed with the utmost of care. These are furnished free of charge with each new unit and will provide a check on Preventive Maintenance for 4,000 hours of operation. Basically, two types of forms are provided:

(a) Inspection check sheets (for 100 hour, 500 hour, 1,000 hour, 2,000 hour and 4,000 hour inspections). Figure 1 shows part of the 100 hour inspection check sheet—these are de-

signed very much along the lines of aircraft maintenance check forms.

(b) Forms for controlling the Preventive Maintenance Program.

Using these forms, the equipment owner need not spend the valuable time of his maintenance men in setting up a Preventive Maintenance Program. He has a ready-made program, combining the best features of other successful Preventive Maintenance systems and eliminating many of the mistakes usually encountered. All the user has to do is instruct his Master Mechanic or Superintendent to follow it.

Less Paper Work

Office work and paper work is cut to a very few minutes a day. A glance at Figure 1 shows that the mechanics merely check off the items inspected. The control of the program is almost equally fast and simple.

Many Preventive Maintenance Programs "fizzle out" simply because no provision is made for control, or the means to follow it is too complicated. Consequently, particular attention is given to the control part of our Preventive Maintenance set up. It is designed to do the job with minimum of paper work.

Figure 2 shows the Driver's Daily Report Form. Only three entries are a "must"—the hours the machine operated, amount of fuel, and amount of oil added.

Figure 3 shows the shop forms. These are not daily forms, but are filled out only when the unit is inoperative during one shift or part of a shift for any reason.

These forms are simple and contain all information needed for the effective control of the program. This control is accomplished mainly through the form illustrated in Figure 4.

NORTH CONSTRUCTION COMPANY	
DRIVER DAILY MEMO	
DATE	Feb 20, 1953
SHIFT	First
UNIT NO.	1039
NO. OF HOURS WORKED	10
TOTAL UNIT HOURS	
NO. OF HAULS	46
LENGTH OF HAUL	1100-1300
JOB LOCATION	Dump/Trip 1/2 day each
GAL. OF FUEL ADDED	48
GTS. OF OIL ADDED	None
GENERAL REMARKS, ADJUSTMENTS, OR REPAIRS NEEDED ON UNIT	
Unit Steers hard to the left	
OK to Right	
Harry Dewey	

★ Figure 2—Driver's daily report form

NORTH CONSTRUCTION COMPANY
UNIT REPAIR AND MAINTENANCE REPORT

DATE IN: Feb 17 DATE OUT: Feb 18 UNIT NO. 1039

TIME IN	TIME OUT	ENGINE	TIRE	PM	SHOP	BAD	NOT	TOTAL
7 PM	10 PM			3		ORDER	NEEDED	TIME
7:30 AM	8 PM			12 1/2			7 1/2	20

*DO NOT RECORD TIME LESS THAN 1/2 HOUR

DESCRIPTION OF SHOP REPAIR

Front axle beam cracked & bent
Beam was replaced.

CAUSE OF DAMAGE

Unknown, suspect faulty axle beam,
but rough haul roads helped beam
to fail.

★ Figure 3—Shop form

NORTH CONSTRUCTION COMPANY
PREVENTIVE MAINTENANCE CONTROL REPORT

UNIT NO. 1039

TYPE OF	DUE AT	DONE AT
INSPECTION	HOURS	HOURS
100 hrs	100	110
100 hrs	210	215
100 hrs	315	320
100 hrs	420	438
500 hrs	538	563
100 hrs	663	663
100 hrs	763	768
100 hrs	868	868
100 hrs	968	988
1000 hrs	1088	1088
100 hrs	1188	

UNIT HOURS TO DATE						
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1		523	1068			
2	20	543	1088			
3	40	563				
4	50	573				
5	70	593				
6	90	613				
7	110	623				
8	125	643				
9	145	663				
10	165	673				
11	175	698				
12	195	718				
13	215	738				
14	230	748				
15	250	768				
16	270	778				
17	290	798				
18	300	818				
19	320	838				

★ Figure 4—Cumulative unit hours and "inspection due" report

NORTH CONSTRUCTION COMPANY
MONTHLY UNIT RECORD

MONTH January YEAR 1953 UNIT NO. 1039
ENGINE S/N 6A 7342 TOTAL UNIT HOURS AT START OF MONTH 0 AT END 513
ENGINE HOURS SINCE LAST OVERHAUL TOTAL ENGINE HOURS AT START OF MONTH 0 AT END 513

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A POSSIBLE WORKING HRS.	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10
B HOURS WORKED	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/5	10/10	10/10	10/10	10/10	10/10	10/5	10/10	10/10
C HRS. AVAIL. & NOT USED																
HOURS FOR PM CHECKS								5						5		
HRS. FOR SHOP REPAIRS																
HRS. FOR TIRE REPAIRS																
BAD ORDER HOURS*																
GAL. OF FUEL CONSUMED																
QTS. OF OIL ADDED																
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
A POSSIBLE WORKING HRS.	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	10/10	570
B HOURS WORKED	10/10	10/10	10/10	10/5	10/10	10/10	10/10	10/3	10/10	10/10	10/10	10/10	10/10	10/10	10/10	513
C HRS. AVAIL. & NOT USED																17 1/2
HOURS FOR PM CHECKS				5												20
HRS. FOR SHOP REPAIRS								7	12 1/2							19 1/2
HRS. FOR TIRE REPAIRS																1
BAD ORDER HOURS*																
GAL. OF FUEL CONSUMED																
QTS. OF OIL ADDED																

*UNIT REQUIRES REPAIR BUT NOT BEING WORKED ON.
HOURS WORKED

AVAILABILITY = $\frac{\text{POSSIBLE WORKING HRS. LESS HRS. AVAIL. \& NOT USED}}{\text{POSSIBLE WORKING HRS.}} \times 100 = \frac{570 - 17\frac{1}{2}}{570} \times 100 = \frac{552\frac{1}{2}}{570} = 93\%$

★ Figure 5—Monthly unit record

NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
100 HOURS

Unit No. 1039 Total Operating Hours 563 Date Feb 9, 1953

Check and correct, if necessary, the following items using these symbols: (✓) if O.K., (x) if repair or adjustment is made, (●) if major repair is needed and not completed. List on reverse side of sheet explanation of repairs made, or reasons they were not completed.

- LUBRICATION**
 - Clean Oil Filler Cap
 - Change Engine Oil
 - Change Lube Oil Filter Elements
 - Check Differential Lube Level
 - Check Rear Axle Planetary L.L.
 - Check Steering Gear Lube Level
 - Check Transmission Lube Level
 - Check Hydraulic Oil Level
 - Clean and Refill Hydraulic Tank Breather
 - Clean and Refill Release Bearing
 - Grease Tandem Units Cross Shaft
 - Grease Brake Cam Shafts
 - Grease Brake Anchor Pins
- OIL CAN POINTS**
 - Throttle Linkage
 - Clutch Linkage
 - Clutch Air Cylinder
 - Emergency Brake Linkage
 - Cab Door Locks
 - Cab Door Hinges
 - Hood Fasteners
 - Battery Case Fasteners
 - Brake Treadle Valve
 - Wiper Motor (Air)
- ENGINE LUBE OIL SYSTEM—Check**
 - All Lines for leaks
 - Oil Filter for leaks
 - Pan Bolts for tightness
 - Clean Breather Cap
- AIR CLEANER**
 - Tighten Hose Clamps
 - Check Hoses and Pipes for cracks or leaks
 - Clean Central Tube
- BELTS—Check for wear, frayed or cracked spots, adjust slack**
 - Pan Compressor
 - Generator
 - Steering Booster
 - Tighten Crankshaft Nut
- ENGINE MOUNTING**
 - Tighten Engine supports
- FUEL SYSTEM**
 - Check Lines for leaks
 - Check Pump for leaks
 - Check Injector Lines
 - Drain Fuel Filters

NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
100 HOURS

Total Operating Hours _____ Date _____

- COOLING SYSTEM—Check for leaks**
 - Hoses
 - Radiator
 - Water Pump
 - Oil Cooler
 - Water Manifold
 - Drain Cocks
 - Check Anti-Freeze strength
- CLUTCH—Check**
 - Linkage for tightness
 - Pedal Clearance 1" free travel
- CONVERTER AND TRANSMISSION—Check**
 - Trans. Mounting Bolts for tightness
 - Converter Mounting Bolts for tightness
 - Oil Lines for leaks
 - Engine Synchronization
 - Converter for leaks
 - Transmission Clutches
 - Gear Shift Linkage for tightness
 - Converter Stall Speed
- TRANSMISSION—Tighten**
 - Mounting Bolts
 - Gear Shift Tower Bolts
 - Beaver Take-off Bolts
- DRIVE LINES**
 - Tighten Companion Flange Bolts
 - Tighten Universal Bearing Bolts
 - Check for loose Universals
- REAR AXLE AND DIFFERENTIAL—Check and tighten**
 - Differential Companion Flange Nut
 - Carrier Nuts
 - Axle Mounting Bolts
 - Clean and Open D/Differential Breather
- WHEELS AND TIRES**
 - Tighten Lug and Wheel Nuts
 - Tighten Driving Flange Bolts
 - Check Tire Pressures
 - Check for cuts, bruises and breaks
 - Check tire mating
- SPRINGS AND TORQUE RODS—Check and or tighten**
 - Broken Spring Leaves
 - Loosen or Broken Spring Pads
 - Bent Torque Rods
 - Held Down Bolts

NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
100 HOURS

Total Operating Hours _____ Date _____

- INSTRUMENTAL PANEL (CONVERTER UNITS ONLY)—Check**
 - Master Indicator
 - Converter High Temperature Indicator
 - Converter Pressure Indicator
 - Transmission Clutch Pressure Indicator
- ACCESSORIES—Check Operation**
 - Pre-heater
 - Windshield Wiper
 - Fire Extinguisher
 - Horn
 - Heater
 - Defroster
- HYDRAULIC SYSTEM—Check**
 - Hydraulic System Operation
 - Hoses and Pipes for leaks
 - Holst for leaks
 - Pump for leaks
 - Tank for leaks
 - Valve for leaks
 - Control Linkage
- SCRAPER UNITS—Check and Adjust**
 - Electric Return Spring
 - Cutting Edges for wear
 - Sheaves
 - Frayed or worn Cable
 - Tighten Stub Axle Set Screw
 - Tighten Hitch Mounting Bracket Bolts
 - Tighten Hitch Pin Collar Locking Bolt
- TRAILER UNITS—Check**
 - Wheel Wind for adjustment
 - Door stops
 - Sheaves
 - Frayed or worn Cable
 - Tighten Stub Axle Set Screw
 - Tighten Hitch Mounting Bracket Bolts
 - Tighten Hitch Pin Collar Locking Bolts
- ROAD TEST TRUCK—Note all defects with explanation on back of sheet.**

ADDITIONS

Time Spent _____

Time Spent _____

Time Spent _____

★ Figure 1—Check list of items to be inspected—100-hour sheets

There is only one daily entry on this form—the total number of hours on the unit—written in the space for the proper day and month of the year. This is obtained by simply taking the hours from the driver's daily memo and adding them to the previous day's total.

Inspection Due

On the left-hand side, the person in charge marks down the period at which the next inspection is due. When this period is reached, the proper inspection check sheets (marked with the particular unit number) are sent to the shop. Thus a forceful reminder is given to the man in charge of the shop inspections.

There is no necessity to carry out the inspections at the exact hour. They may be carried out off-shift, or as closely to the specified time as convenient. When the Preventive Maintenance inspection has been completed, it will appear on the Unit Repair and Maintenance Report (Figure 3), and the person in charge will fill

(Continued on page 85)

NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
500 HOURS

Unit No. _____ Total Operating Hours _____ Date _____

- ELECTRICAL SYSTEM**
 - Check and correct, if necessary, the following items using these symbols: (✓) if O.K., (x) if repair or adjustment is made, (●) if major repair is needed and not completed. List on reverse side of sheet explanation of repairs made, or reasons they were not completed.

NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
1000 HOURS

Unit No. _____ Total Operating Hours _____ Date _____

- LUBRICATION—Check and Adjust**
 - Change Engine Oil
 - Change Lube Oil Filter Elements
 - Check Differential Lube Level
 - Check Rear Axle Planetary L.L.
 - Check Steering Gear Lube Level
 - Check Transmission Lube Level
 - Check Hydraulic Oil Level
 - Clean and Refill Hydraulic Tank Breather
 - Clean and Refill Release Bearing
 - Grease Tandem Units Cross Shaft
 - Grease Brake Cam Shafts
 - Grease Brake Anchor Pins

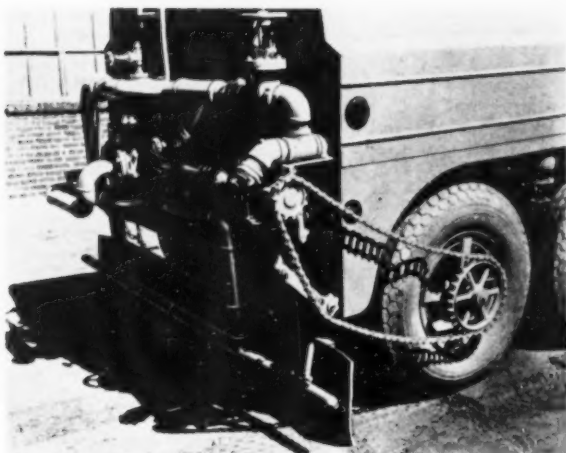
NORTH CONSTRUCTION COMPANY

PREVENTIVE MAINTENANCE
2000 HOURS

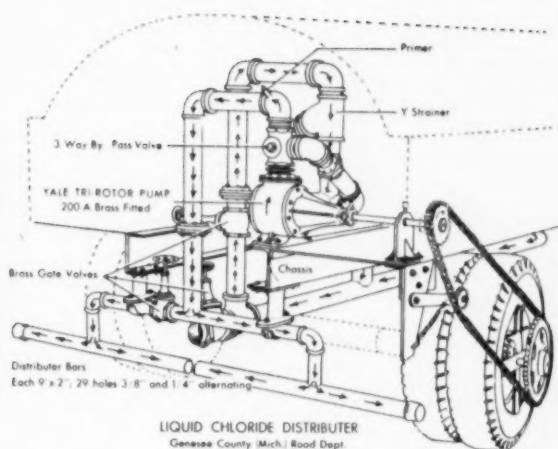
Unit No. _____ Total Operating Hours _____ Date _____

- COOLING SYSTEM**
 - Hoses
 - Radiator
 - Water Pump
 - Oil Cooler
 - Water Manifold
 - Drain Cocks
 - Check Anti-Freeze strength

★ Figure 6—Forms for reporting 500, 1000 and 2000-hour maintenance



★ Calcium chloride spraying apparatus on Genesee County (Mich.) Road Department truck. Accurate spray is assured through sprocket attachment connecting wheel of truck and shaft of metering pump



LIQUID CHLORIDE DISTRIBUTOR
Genesee County (Mich.) Road Dept.

Metering Pump Assures Accurate Spraying Job

HOW to gear spray-bar output accurately to truck speed is a problem faced by many equipment users. Rural road maintenance authorities are among those faced with this dilemma in their dust control work. One of the most common procedures for holding down dust on dirt roads is a periodical spray of a calcium chloride solution from tank truck or trailer. Until recently, a worker had to be stationed at the rear of the tank to judge the flow by eye and control it by hand. The Dow Chemical Company has developed a system of rural road dust control requiring only one worker per truck, and assuring the most efficient use of calcium chloride.

Since a gallon of 35% chloride solution is enough to treat up to 100 sq. ft. of road surface, no pumping is necessary. In fact, pressures over 10 psi. should be avoided because they cause fogging. The basic requirement, therefore, boiled down to a metering system which would automatically adjust the flow of solution to the speed of the truck.

Many Units in Use

The J. N. Fauver Company, Inc., Detroit, pump distributor, prescribed a type 200-A, bronze fitted Tri-Rotor Pump made by The Yale & Towne Manufacturing Company. Dow uses this equipment, chain driven by one of the rear wheels of the tank trailer, for this type of metering work. More than 50 of these pumps have been

placed in use for spraying dirt roads in various parts of Michigan.

Typical of these installations is that of the Genesee County Road Department pictured. The bronze fitted, standard-head, clockwise-rotation pump is mounted on the back of a 2,000-gal. tank trailer. The only modification to this pump is in the shaft, which has 25 in. extra length, and is supported at the sprocket end by a pillow block bearing. It is connected to the right-hand trailer wheel by a chain-and-sprocket drive. Complete construction details are shown in the drawing.

The sprocket ratio is simple to determine. The Genesee Road Department's 35% solution; it requires 534 gal. per mile for each 10 ft. traffic lane. This is about 99 sq. ft. per gal. The pump delivers 0.46 gal. each revolution. Dividing the number of gallons per mile by the number of gallons per revolution gives about 1,161 pump revolutions per mile. Trailer tires (9.00x20) revolve 531 times per mile. The required sprocket size for a given spray-bar application can be figured easily from this information.

Providing a suitable distributor is employed, such arrangement will spread the required 0.01 gal. on each square foot of road surface, no matter how fast or how slowly the trailer may be moving.

The distributor pipe, however, must be carefully designed. The J. N. Fauver Co. points out that the success of the installation depends largely on

this element of the system. Spreading the calcium chloride solution evenly without excessive spray or high back pressure depends on the number, size and spacing of holes in the distributor pipe.

Several Variations

Some variations of the basic installation have proven successful. Where several road boards or commissions must use the same tank, a variable displacement head can be specified to meet the different ideas on amount of solution, or varying strengths of solution which will be encountered. The by-pass head will eliminate the need for an external by-pass, and provide an extra margin of safety for the pump. In the Genesee County installation, the by-pass valve is opened and closed by hand, and the sprocket chain adjusted and removed by the truck driver at the start and end of each run; both operations can be handled from the truck cab by using a solenoid to operate the by-pass valve and installing a clutch between the wheel and the wheel sprocket. In the case described, a clockwise rotation provides for operation from the right-hand wheel; however, the left-hand wheel may be used if counterclockwise pump rotation is specified.

The pump should be carefully protected in use. The strainer in the intake line will prevent jamming due to hard objects which may get into the tank. A weak link in the drive chain or a shear pin will prevent damage in case the pump does jam. The pump should always be disconnected and the solution by-passed when the trailer is being moved to and from the road to be sprayed. The inside of the pump should be spread with a protective coating such as crude oil before handling calcium chloride, and it should be flushed out with clean water after every day in use. With proper protection, the installation will last for at least two years of heavy use.

Progress Estimates

How to Compute Normal and Actual Progress on Construction Contracts

By Commander H. W. Schleites
United States Coast Guard

WHAT is the normal progress to date? What is the percentage of work completed to date? The answers to these questions are among the entries inspectors assigned to Coast Guard construction contracts are required to make on their progress reports to their superiors. This information serves two essential purposes: (1) a comparison of the normal progress figure with the actual percentage completed permits the contracting officer to tell at a glance the status of the work, and (2) the estimate of the percentage of work completed as reported by the inspector is the basis upon which partial payments are calculated and paid the contractor.

Considerable experience and judgment is required to avoid erroneous estimates and to accurately arrive at the percentage of work completed, especially on complex projects involving numerous types of work, skills, crafts, and phases. When non-technical men or persons lacking construction experience are assigned the responsibility for performing the duties of the inspectors, they are frequently unduly influenced in making their estimates by the physical size or apparent scope of certain initial phases of the work such as the erection of building frames or structures. The inspector accordingly gives this phase of the work too much weight, and allows insufficient values for the more intricate, complicated, time-consuming phases, such as electrical and mechanical work, which follow. This practice places the inspector in the position of being unable to explain to the contracting officer the long delay in completing a job which he has previously reported

well along or substantially completed.

For elementary types of work such as excavation or constructing simple pile structures, where little advance preparation is required, normal progress can be represented by a straight line beginning at zero per cent when work is commenced and ending at 100% upon expiration of the contract performance time. On this type of work the entire construction force and equipment are present on the job from beginning until the end and work proceeds at approximately a uniform rate as indicated in Figure 1.

Normal Progress

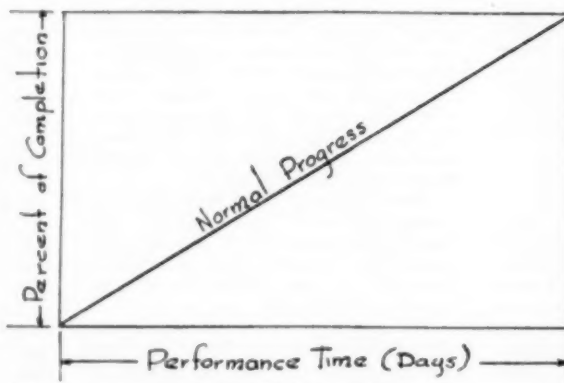
When projects consist of many classifications or types of work, skills, crafts, and phases, a normal progress chart similar to Figure 1 is not truly representative. On these more complex projects, preparation of normal progress schedules and charts require discretion on the part of the engineer. Usually contract provisions require the contractor to furnish a cost breakdown and schedule for the work. This cost breakdown can be used as a guide in evaluating the various phases of the work and their contribution to the project as a whole. It should be kept in mind, however, that contractors frequently swell the cost figures applying to early phases of the work as a means of increasing the amount of the partial payments which they earn. This practice should be consid-

ered in preparing progress charts and estimates.

Experience has shown that each job and, for that matter, each phase of a job proceeds as though there were considerable inertia to overcome both at the beginning and at the end. Therefore the normal progress curves should assume the general shape of harmonic or sinusoidal curves, as illustrated in Figure 2. These curves may be constructed quite satisfactorily for all practical purposes by assuming the following arbitrary ordinates between the initial (0%) and final (100%) points:

- 0 percent completion at beginning.
- 15 percent completion at $\frac{1}{4}$ contract performance time.
- 50 percent completion at $\frac{1}{2}$ contract performance time.
- 85 percent completion at $\frac{3}{4}$ contract performance time.
- 100 percent completion at full contract performance time.

A chart which is theoretically more accurate may be constructed by taking the curves representing progress on each phase of the work according to contractors' advance progress schedule, giving each curve a weight based on the contractor's cost breakdown, and constructing a composite curve representative of the whole project. This refinement is seldom, if ever, justified, unless the job extends over several years as a result of which seasonal interruptions may accordingly cause irregular progress. For most practical purposes, a graph constructed by passing straight lines through the above control points will be sufficient accurate. This type curve is illustrated by the dashed lines in Figures 2 and 3. Certainly a harmonic curve should, except in very unusual cases, satisfy the most rigid requirement.



★ Fig. 1. Normal progress, commonly assumed

Reprinted by Courtesy of
The Engineer's Digest, United
States Coast Guard, Treasury
Department.

		Reporting Period																								
ITEM	DESCRIPTION	%	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
a-1	Excavation	3		40	100																					
a-2	Footings	2			30	70	100																			
a-3	Basement Walls	5				20	70	100																		
b-1	Carpentry	25					10	25	40	55	75	95	95	96	96	100										
b-2	-																									
c-1	Masonry	5								20	20	20	20	50	80	80	80	80	80	100						
c-2	-																									
d-1	Lathing	4										40	90	100												
d-2	Plaster - base coat	2											25	90	100											
d-3	Plaster - scratch coat	2													70	100										
d-4	Plaster - finish coat	2														60	100									
e	Roofing & Flashing	5												30	70	70	100									
f	Interior Trim, Etc.	10																20	50	90	100					
g	Finish Floor, Etc.	5																	25	60	100					
h	Painting	5														10	20	20	20	50	50	70	70	100		
j-1	Plumbing - Rough in	5						20	60	60	80	80	100													
j-2	Install Fixtures	5																	30	80	100					
k-1	Heating - Boiler	5														75	100									
k-2	Heating Piping & Radiators	5															70	30	60	60	50	80	100			
l-1	Electric Wiring rough in	3														20	70	80	80	80	100					
l-2	Install Elec. Fixtures	2																			10	40	100			
		100%																								
		Note: where cross hatching is omitted, no progress was made on that item during period																								
		Progress at end of reporting period																								
NORMAL Progress (from fig. 2)		0.4	1.7	3.8	6.7	10.5	15.0	19.6	25.0	30.9	37.1	43.5	50.0	56.5	62.9	69.1	75.0	80.5	85.0	89.6	93.3	96.2	98.4	99.6	100.0	
ACTUAL Progress (calculated)		0.0	1.2	3.6	5.4	8.5	12.5	17.5	23.0	27.5	33.5	40.35	45.35	51.55	58.6	64.8	68.9	71.4	74.6	82.2	90.15	95.5	99.5	100.0	100.0	

★ Fig. 3. Progress chart

After the contractor submits his cost breakdown, the engineer should use this information to calculate the contribution of each phase of the work to complete the job. The following table might illustrate the division into its components of the total cost of constructing a hypothetical \$20,000 frame home:

(a) Excavation, foundation and basement walls.	\$2,000.00	10
(b) Rough carpentry and siding	5,000.00	25
(c) Masonry in chimneys, fireplace, etc.	1,000.00	5
(d) Lathing and plastering	2,000.00	10
(e) Roofing and flashing..	1,000.00	5
(f) Interior trim, doors, kitchen equipment..	2,000.00	10
(g) Finish flooring, tile and linoleum	1,000.00	5
(h) Painting	1,000.00	5
(i) Plumbing	2,000.00	10
(j) Heating	2,000.00	10
(k) Electric wiring.....	1,000.00	5
Total cost.....	\$20,000.00	100

Each major subdivision can be further broken down if in the opinion of

the engineer the additional work is justified by the scope of the project. Item (a) could thus be subdivided:

- (a-1) Excavation, 3 percent.
- (a-2) Footings, 2 percent.
- (a-3) Basement walls, 5 percent.

and with item (d) the subdivision might be:

- (d-1) Installing rock lath, 4 percent.
- (d-2) First coat, 2 percent.
- (d-3) Scratch coat, 2 percent.
- (d-4) Finish coat, 2 percent.

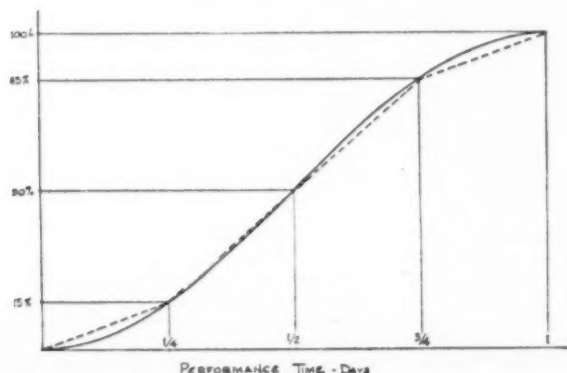
Actual Progress

After the various parts of the job have been broken down in sufficient detail, a progress chart should be constructed for the guidance of the inspector. Figure 3 illustrates such a chart based on the foregoing table of weights. This chart is a bar chart on which the length of the bar represents elapsed time required for the execution of each item and the figures within each bar represent the current status of that phase of the work.

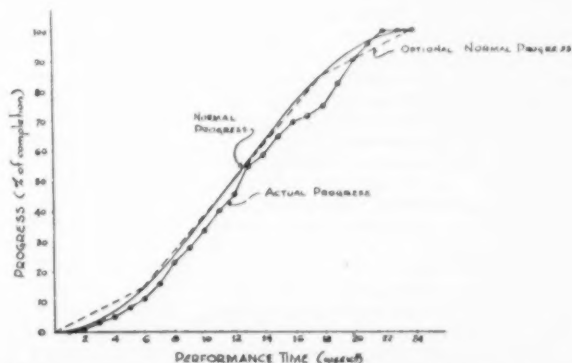
Whether the bars should be continuous until the item is completed or interrupted during periods when no work is in progress on that phase is optional. In the example the bar is cross-hatched when work is in progress during the week and open when there is no progress on the item during the week. The third column shows the percentage each item contributes toward the finished job. All percentages are based on job costs. The percentages at the bottom of the table represent the actual status of the job at the end of each reporting period. These figures are the totals of the weighted percents of completion of each item. For example, at the end of seventh reporting period the total percent of completion is computed as follows:

Item a-1	100% of 3%.....	3.00
" a-2	100% of 2%.....	2.00
" a-3	100% of 5%.....	5.00
" b-1	25% of 25%.....	6.25
" j-1	20% of 5%.....	1.00

Total (estimated progress)... 17.25%
(Continued on page 85)



★ Fig. 2. Normal progress as harmonic curve



★ Fig. 4. Graphic representation, normal and actual progress



1 Cutting away the line of high sod



2 How sod on outer shoulder builds up, stifles drainage



3 Sod and roots skimmed away, without disturbing gravel



4 Loader mounted on grader handles disposal of sod

Cure for High, Rutted Shoulders

"FALSE" shoulders and ruts along paved highways have always been headaches for those in charge of road maintenance. They are a prime factor in shoulder erosion and break-up of pavement. As the sod builds up at the outer edge of the shoulder, it prevents drainage to the ditch, causes shoulder material to wash away, and the drop off along the pavement edge becomes deeper and deeper. Water seeps under the pavement, softening the base and causing breaks in the road.

Danger to highway users increases progressively as the drop-off becomes deeper and breaks in the pavement occur more frequently. Such a condition results in changing a safe highway into a hazardous one for careful as well as poor drivers.

The "false" shoulders can be corrected economically with one piece of

equipment, suggests a representative of Allis-Chalmers. Pictured here is a method employing a motor grader, the tandem-drive Allis-Chalmers D equipped with a Tractomotive rear-end loader and a shoulder maintenance blade which are interchangeable.

With one operator the false shoulder is removed, sod loaded into trucks for disposal, the shoulder is reshaped and drainage restored, after which the correct shape of the shoulder then can be obtained with one pass.

Cutting Sod

The first step is to cut the sod with the blade, rolling it to the pavement edge, or onto the pavement if the shoulder is narrow. The outer blade end must extend over the shoulder slope to assure a clean cut.

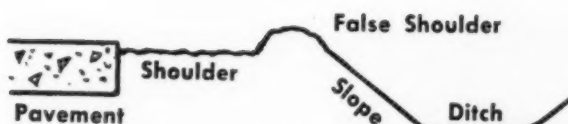
The windrow of sod left by the

grader usually consists of a root mat with very little dirt or gravel. A careful grader cut eliminates the "false" shoulder but does not disturb or waste the shoulder gravel.

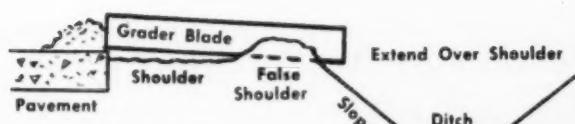
Sod is mean to handle and expensive to break up. The most satisfactory method of disposal is to haul it away in trucks. The rear-end loader attached on the grader provides an economical means of loading. Truck and grader straddle the windrow. By means of the loader's long reach the truck body is fully loaded from the rear.

Back-and-forth movement of the grader during the loading compacts the shoulder material along the slab edge. Loading is done far enough on the side of the road to give little interference to traffic.

The next step is to restore the shoulder to the correct shape. The



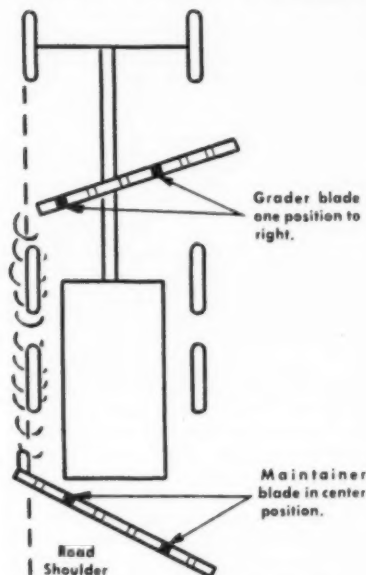
★ Typical "false" or raised shoulder, showing how sod works up until drainage is impeded



★ How grader blade is used to cut away excess sod in a single pass, throwing it into a windrow for disposal

bucket is removed from the loader booms, and the shoulder maintenance blade is mounted in place with the same pins.

The shoulder is shaped with the grader blade. As it is being shaped, the operator feathers the windrow out behind him with the shoulder maintainer. Material from the grader blade is rolled to the pavement edge and directly in front of the tandem drive wheels. These wheels compact the material before it is feathered by the maintainer blade. Compaction at this point is important to eliminate



★ Position of grader blade and rear maintainer blade. Material should be discharged in front of tandem wheels next to pavement edge

the "drop-off" at the pavement edge and keep shoulder material in place, protecting both pavement and motorist.

The finished job is a smooth, safe, well drained shoulder, easy to maintain in the best possible condition. The corrected shoulder has the effect of widening the highway and provides ample off-pavement space for drivers in emergencies.

Engineer Shortage

(Continued from page 77)

neering," Condit said, "Yet no good specialist with the qualities of leadership in industry and technology will result from narrow specialized training."

In another discussion from the view-



5 In a single pass the same maintainer, with rear-end maintenance blade substituted in place of loader, smooths shoulder to complete the job

point of the profession, Don P. Reynolds, of the American Society of Civil Engineers, New York, noted that starting engineers and those at the peak of the profession are being well compensated. "However," he pointed out, "there are many extremely productive men in the middle brackets who have become discouraged and embittered by failure of the recognition of the compensation to keep pace with the relative value of their professional efforts."

Preventive Maintenance

(Continued from page 80)

out on that day the number of hours at which it was accomplished on the Preventive Maintenance Control Report (Figure 4) and also mark, at the same time, the number of hours at which the next inspection is due.

Thus, the superintendent can, at any time, glance at the Control Report and see how his Preventive Maintenance program is adhered to. He should make it a habit to check it every week at least—he can do it at a glance and in a matter of seconds, for one form (printed on both sides) is good for one whole year.

The last form, Monthly Unit Record (Figure 5) is optional—it need not be kept by the user who must cut his paper work to the bare minimum. If it is kept, it provides a good summary to measure the effectiveness of the program in terms of equipment availability. It also serves as a warning, showing up very clearly any increase in oil consumption, which is always a danger sign. The information on this form is merely copied from the Driver's Daily Memo and

from the Unit Repair and Maintenance Report. It is then summarized at the end of each month.

To guide each user, a 22-page pamphlet, "Euclid's Guide to Preventive Maintenance," has been published. Strip films with sound are also available, showing the importance of a good Preventive Maintenance Program, and the details of making the individual inspection.

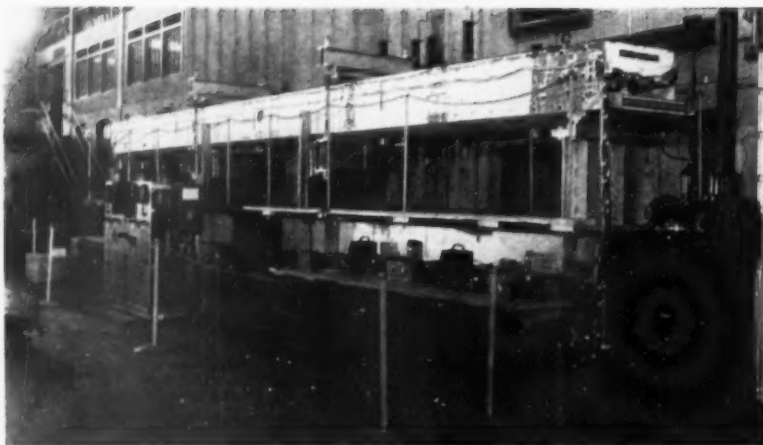
Progress Estimate

(Continued from page 83)

The estimated progress is entered on the chart at the end of each reporting period. This data may be plotted on a progress graph to show visually the overall status of work. Figure 4 is such a graph.

Should close surveillance by the office be required, the contracting officer may require the inspector to submit not only the over-all progress on the job at the end of each reporting period, but the progress on each item of figure 3. This information will permit the contracting officer to maintain progress charts and graphs identical to those maintained at the job.

No attempt has been made in this article to propose anything new or radical in the administration of construction contracts, but to describe a method whose use will do much to eliminate guesswork in arriving at normal and actual progress figures. It will further provide a systematic guide whose use will enable persons of good judgment, but lacking a technical background, to prepare intelligent and realistic estimates. Similarly, the methods described should not be considered a standard procedure, but may be varied as needed.



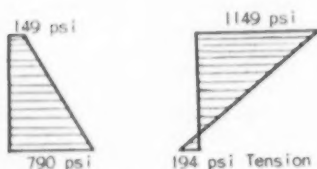
★ Thirty-eight foot beam in repetitive loading machine

Prestressed Concrete Full-Scale Beam Test Planned at Lehigh

PRESTRESSED concrete structures are growing in importance in the United States. To keep pace with this newer American development following is a description of the present investigation of prestressed concrete bridge members being conducted at the Fritz Engineering Laboratory of Lehigh University at Bethlehem, Pa. The first full-scale beam test on the program as shown below is now in progress.

The program consists of the following:

1. Pilot beam tests.
2. Full scale beam tests.
 - (a) Pretensioned 38 ft. beam. The accompanying charts and picture show this beam.
 - (b) One-unit post-tensioned 38 ft. ungrouted beam.
 - (c) Multi-unit post-tensioned 38 ft. ungrouted beam.
 - (d) Possible additional full scale beam tests.
3. Model tests of beams and composite bridge behavior.
4. Test of an actual bridge structure.



Dead Load Only D.L. + H20-S16 L.L.
+30 % Imp.

★ Calculated stresses at centerline section

The objectives of the test program are:

To check the validity of design assumptions at static working load, cracking load, and ultimate load.

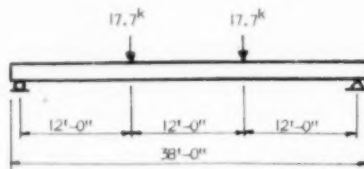
To determine the effects of repeated working load as represented by the passing of 1,000,000 H20-S16 trucks at 40 mph.

To furnish test data that may aid in the preparation of a design specification.

The first full-scale beam to be tested is under 2(a) above. The program outlined for this beam is as follows:

1. Static test to design load.
2. 300,000 cycles of design load.
3. Static test to design load.
4. Further 300,000 cycles of design load.
5. Static test to design load.
6. Further 400,000 cycles of design load.
7. Destruction test.

Both the static and cyclic loading is applied by means of a testing machine designed and constructed in Fritz Laboratory. (See accompany-



(a) Test Loading

★ First full scale test beam

ing picture.) The loading is applied through hydraulic tension jacks and the frequency of the pulsations is regulated by an electronic timer operating a four-way valve. Strains in the concrete and in the strands are recorded by means of SR-4 strain gages and Whittemore gages. Automatic strain recording equipment is used to record steel and concrete strains during the cyclic loading. Beam deflections and end slip of strands are recorded.

The test project is being sponsored by the following: Reinforced Concrete Research Council, A. E. Cummings; Pennsylvania Department of Highways, L. A. Porter; Bureau of Public Roads, J. L. Stinson; Concrete Products Company of America, B. J. Baskin; John A. Roebling's Sons Company, J. N. Hicks; American Steel & Wire Div., U. S. Steel Co., W. O. Everling; Lehigh University, Prof. W. J. Eney.

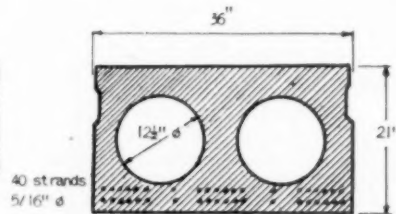
The project is under the immediate supervision of Professor W. J. Eney, Department head and Fritz Laboratory Director as project director, with Dr. K. E. Knudsen, Asst. Prof. of C. E. as project co-director; Alexis Smislova, Instructor in C. E. as research assistant; Alfred Roesli and Daniel H. Brown, research assistants.

Father Devine puts curse on turnpike

Father Devine, self-styled God and religious organizer, has ordered his followers to stay off the New Jersey Turnpike, notes a news item from Associated Press.

The Negro religious figure said that the ban resulted from "rude and discourteous treatment and a complete lack of recognition" by the arresting officer on the Turnpike, who charged him with speeding. A fine was paid for each of the four cars in the entourage.

The Turnpike officials do not seem worried. Possibly they would welcome a little traffic relief—not to mention the publicity which might aid them in enforcing traffic regulations in their safety campaign.—Editors.



(b) Cross Section of Beam



★ The Impactool used for removing 1½-in. carrying axle, main bolt on heavy tractor, using on extension



★ Mechanic here is removing 2¼-in. nut from the tractor's roller axle shaft bolt

Power Impact Tool Cuts Repair Cost on Heavy Equipment

A large-scale user of trucks and heavy hauling and materials-handling equipment in Waukegan, Illinois, has shown how a new multi-use power shop tool can cut repair costs. Saving on just two operations—tire changes and spring jobs — have reportedly totaled over \$1,400 per year on labor and parts.

The company is the Economy Coal and Building Materials Co. It operates 54 trucks, including 14 ready-mix carriers, Diamond T tractors, Hendrickson 6-wheelers, Federals, Whites, Fords, Dodges and others. In addition, there are four Caterpillar tractors, an International bulldozer, Bay City and Lima back hoes, and a Unit mobile crane.

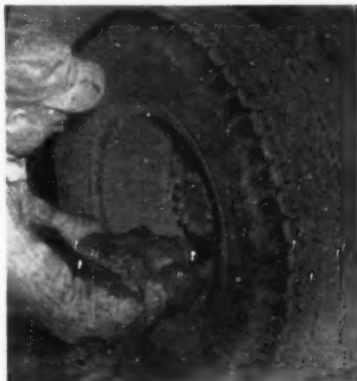
Maintenance Superintendent Arthur Wendt reports that the maintenance of this heavy equipment in the past posed several serious problems. Good mechanics are scarce and many men did not want to work on the heavy vehicles. Some jobs simply could not be done satisfactory with hand tools. For example, he describes the replacement of spring U-bolts as a "man-killer," an arduous job taking as much as half a day. Even then, a man could not tighten the bolts adequately by hand and, when the truck went over a curb or ditch as these vehicles do repeatedly in normal operation, the cen-

ter tie-bolt sheered off, often resulting in a broken spring.

In an effort to meet these and other problems, the company put into its maintenance shop one of the new size 34U Ingersoll-Rand electric Impactools, a power tool specially designed for truck work and other heavy-duty operations.

U-Bolts Stay Tight

The spring job on the smaller trucks took an average of 4 hours with hand



★ Pulling wheel bolts on a Ford truck. The deep set bolts are hard to reach with a hand wrench, easy with the power tool using an extension

wrenches. With the electric tool, the time was cut in half. Even more important, this repair job has been virtually eliminated. The U-bolts run with the power tool have stayed tight, and there has been hardly any breakage of tie-bolts and springs since the Impactool was introduced into the shop.

In the past, the shop averaged 30 spring jobs a year requiring replacement of 30 center bolts, 6 main leaf and 10 other springs. Virtual elimination of this breakage meant a saving on parts of about \$75. A saving of 2 hours on each job (with labor at \$2.00 an hour) adds \$120 to the savings. With an end to breakage, the entire job is wiped out and labor savings are actually \$240.

Other common operations were speeded when the power tool replaced the hand wrench. Changing a big dual wheel with its pair of tires was a 45 minute job. With the new tool, 20 minutes. This shop changes an average of four duals a day, seven days a week. At that rate, the power tool saves 608 hours a year, a cash saving of \$1,216 a year on labor.

Shop personnel cited several examples of jobs which could not be done properly without the impact tool. The tool is used on all maintenance work on the tracked vehicles. For example, the front unloader bolts tend to shake loose and on some vehicles it is impossible to swing a hand wrench. With the power tool, the job is easy. Similarly, on the Lima back hoe, there are places it is impossible to get the leverage necessary to tighten bolts. Again, this problem has been solved with the power tool.

WHAT'S NEW...

in Construction and Road Building Equipment, Materials and Supplies

1

Caterpillar announces new No. 6 2-yard tractor shovel

The No. 6 Shovel, first highly mobile track-type shovel of two-yard capacity, was put into production in April by Caterpillar Tractor Co., Peoria, Ill. It is designed for best digging, carrying and dumping ability. Over \$2,009,099 in advance orders were on hand at announcement time.

Integral Unit. The new shovel will be powered by a 66-drawbar-horsepower crawler on a non-oscillating track frame. It is an integral unit with the tractor shovel frame bolted and welded at widely separated points on the tractor engine support channels and the transmission housing. It is designed for excellent balance and stability.

Hydraulic Mounting. Aiding this is rear mounting of the hydraulic system which also permits better radiator cooling and, along with the high seat position, better visibility. The lift cylinders are horizontally mounted above the tracks to avoid the possibility of clogging with dirt and side door panels prevent dirt from getting to the engine.

Clearance. The unit is engineered for good frame clearance underneath. There also is a heavy-duty bumper guard in addition to the customary radiator guard. A heavy section cross brace between the lift arms maintains bucket stability. Good clearance action is assured by a bell crank

striking the stop on the lift arm to shake out sticky materials. The bell crank off center mechanism assures a heaping load at each pass by a rapid tilt of the bucket to the carrying position.

Dumping Height. The dumping height is 10' 9", the reach 3' 5", insuring dumping of materials in the center of all standard hauling units. The big bucket is made of layer plate to withstand abrasive action. In both the raised-carry and raised-dump positions, the operator has unobstructed visibility both front and rear.

Lift Arms are of welded box construction for maximum strength and minimum weight. The bucket control arms are made of solid steel and a box-type cross brace ties the lift arms together.

Operator Comfort. To keep operator fatigue at a minimum, the control levers for the bucket and the lift arms are located so both may be operated with one hand. The hydraulic lift arm control lever, once engaged, remains in position without holding. The operator has both hands free to shift gears or turn the shovel, while the bucket continues lifting. At the maximum lift, an automatic kickout disengages the lever.

Mobility. Five gears forward and four in reverse make the machine adaptable to a wide range of job conditions. Large front idlers give the No. 6 Shovel greater stability and permit more accurate control of the machine. It has longer track roller frames than the D6 and one track roller has been added to each side for increased traction and lateral stability.



Caterpillar No. 6 Shovel

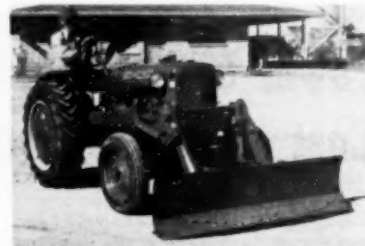
The 18-in. flat center shoes were designed specifically for tractor shovel work and combine the characteristics of flotation, traction and resistance to side slip. The raised center of the shoe serves as street plates and the cut-out centers give better clearance action. Detachable grousers are available if required.

Circle the number of this item on the post card and get additional information.

2

New bulldozer attachment for A-C wheel tractor

A new bulldozer for Allis-Chalmers Model L.B. wheel tractor has been developed by Lewis-Browning Mfg. Co., 111 Humble



Bulldozer Attachment for Wheel Tractor

Ave., San Antonio 6, Tex. This model bulldozer was designed especially to fit on the front end of the IB Tractor and not interfere with the mower attachment on the back of the tractor or any draw bar work. It is mounted completely on a "U" shaped frame made to fit the front of the tractor frame and will use all of the holes already provided in the tractor frame. Less than an hour is required to install the bulldozer on an IB Tractor and connect the hydraulic line to the pump which Allis-Chalmers provide with their power takeoff unit. Regardless of the position of the blade, whether working or lifted, the mold board maintains the position in which it has been set for most efficient work. Two cylinders are provided for lifting, one on each side, making the control more positive under all conditions.

Circle the number of this item on the post card and get additional information.

3

New general purpose welding electrode

A new general purpose mild-steel welding electrode, designed for optimum flexibility of application with reduced operator effort, has been announced by the General Electric Company's Welding Department, Schenectady, N. Y. Designated as G-E Type W-610-A, the new electrode is a d-c reverse-polarity rod meeting AWS Class E-6010 specifications. According to G-E engineers, the electrode facilitates butt, fillet, lap joint, and edge welding in all positions.

Circle the number of this item on the post card and get additional information.

4

100-ton roller has advanced yoke design

A new 100-ton compaction roller with advanced yoke design has been announced by Southwest Welding & Manufacturing Co., Alhambra, Calif. Rolling on 44-ply 2100 x 25 tires with a rated load per tire of 53,000 lb., this unit features four unitized weight boxes. Each box can rise and fall 12 in. to follow uneven ground. The large diameter steel tubing yoke is constructed in sections to permit the use of three to six weight boxes, each riding on its own tire and each free to rise and fall independently of the others.



New 100-Ton Compaction Roller

A new feature is the manner in which inside beams are full-circle welded to the yoke, instead of being bolted in place. On gravels, medium clays and silts it is claimed that a maximum compaction of 6 to 12 in. lifts is reached with only four to six passes.

Circle the number of this item on the post card and get additional information.

5

New reflective sheeting has long range visibility

A new and improved flexible reflective sheeting, Grotelite SS (Smooth Surface) has been announced by the Grote Manufacturing Co., Inc., Grote Square, Bellevue, Ky. This unique material which reflects light rays back to their source is stated to make it very effective both day and night for signs of all kinds. Its surface is uniformly covered with minute lenses (over 26,000 per square inch) which are integral with the surface giving it unusually long range visibility.

Circle the number of this item on the post card and get additional information.

6

New chain saw weighs 29 lb.

A new 2 MG chain saw, announced by Mall Tool Co., 7725 South Chicago Ave., Chicago 19, Ill., balances easily on one finger. It is claimed to have more power



New Mall Chain Saw

per pound than any other chain saw. It packs 5 HP into a 29 lb. unit, offering a combination of power, light weight and balance.

Circle the number of this item on the post card and get additional information.



FIELD JOB REPORT

OWNER:

Carl Goodwin & Sons,
Allegan, Michigan.

PROJECT:

Grading and Paving 5½ miles
on highway M-140, Watervliet,
Michigan.

CONDITIONS:

Blue clay...average digging
depth, 14 feet.

EQUIPMENT:

MICHIGAN MODEL C-16 HOE with
31-inch dipper. Powered with
GM 2-71 diesel. Crawler pads
30 inches wide.

REMARKS:

Wayne Goodwin reports complete satisfaction with his new MICHIGAN C-16 HOE. New gooseneck boom digs down to 18 feet. Real stability is assured with the C-16's 10'-1" wide, 11'-10" long crawler base. The 30-inch wide pads give a ground bearing area of 7,440 square inches.

MICHIGAN POWER SHOVEL COMPANY
Benton Harbor, Michigan, U. S. A.

WRITE FOR BULLETIN 1601 SUP.



JACKSON VIBRATORY COMPACTOR

**RAPIDLY
CONSOLIDATES**

**PIPE LINE
BACKFILL**

**TO SPECIFIED
DENSITY**

Result — pipe line is uniformly supported by compacted soil and top of trench stays to finished grade. This manually-guided, self-propelling Jackson Compactor will compact granular soils at optimum moisture to specified density in depths of 8" to 12" at the rate of 2,400 sq. ft. per hour. It is available with quickly interchangeable bases of 12" to 24" and is equally advantageous for blacktop pavement widening and patching — paving drives, walks, etc. Operated from Jackson Power Plant mounted on auto trailer with quick pick-up of Compactor. For rent or sale at your Jackson Distributor. Write for details.

JACKSON HANDIEST, MOST PRODUCTIVE SCREED ON THE MARKET

For the tight spots or just straight-away paving you will find the Jackson Electric Vibratory Screed the fastest, most convenient and efficient screed you have ever used. It strikes off to any crown, undercuts at curb or sideform, works up to and around all obstructions. It permits pouring slabs up to 30' without center joint. Requires only two men on widest slab and is the only screed that can be rolled back for second passes on 4 rollers. Powered by Jackson Portable Power Plant. For rent or for sale at your Jackson Distributor. Details on request.



**JACKSON
VIBRATORS, INC.
LUDINGTON, MICHIGAN**

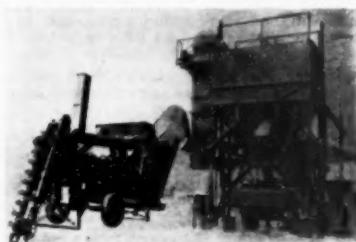
7

Gradation control units for asphalt plant

Barber-Greene Co., Aurora, Ill., has announced that their 20-35 ton per hour, Model 840 asphalt plant can now be equipped with gradation control units, providing three or four bin screening and separation of the aggregate after drying. Two gradation control units, Models 863 and 864, are available.

The Model 864 gradation unit has been designed especially for use with the Barber-Greene Model 840 mixer. Conversion kits are available to adapt mixers already in use for operation with the gradation control unit. Of the "tower" type, the Model 864 operates above the mixer, receiving the aggregate via an enclosed bucket elevator from the dryer. The entire unit, including its structural members is of sectionalized construction for easy erection and transportation. The Model 864 is normally set-up for three bin separation. However, an accessory, fourth bin is available for use when specifications so require.

For the ultimate in portability, the Model 863 gradation unit has been mounted on a rubber tired chassis. It can be towed behind a truck for moving from job to job. Like the Model 864, it is normally equipped to provide three-bin separation, but can be



Model 864 Gradation Control Unit

adapted to a four-bin set-up by adding an auxiliary fourth bin. The Model 863 gradation unit, operates in conjunction with the new Model 843 mixer.

Circle the number of this item on the post card and get additional information.

8

Deluxe cab available for Huskie tractors

A new deluxe cab is available for the Huskie and super Huskie tractors of Mercury Manufacturing Co., Chicago, Ill. The cab's 12-gage, all steel body can be supplied to customers for mounting on their own tractors. Excellent operator visibility is obtained with a one-piece shatterproof windshield glass. The cab is available with or without removable side doors and rear panel. Many optional attachments are avail-



New Cab for Huskie Tractors

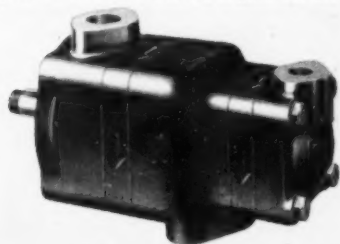
able for use with this cab. These include electric lights, electric windshield wiper, heater, defroster system, and directional turn-signal indicators.

Circle the number of this item on the post card and get additional information.

9

Two new double pumps for mobile applications

Two new double pumps, Series V-2200 and V-3200, for mobile applications where two independent hydraulic power sources are required have been announced by Vickers, Incorporated, 1432 Oakman Blvd., Detroit 32, Mich. Both series are compact and each consists of two vane type pumps in a single housing, driven by a common shaft. This provides the required independent systems and, in addition, significant sav-



New Vickers Pump

ings in space and costs. Improved operational characteristics and lower maintenance costs are also stated to be assured.

The new double pumps are particularly applicable to materials handling equipment and road and construction machinery for applications such as power steering in addition to the usual needs. Both series provide long service life with continuing high efficiency and low maintenance requirements. Their basic design is identical with Vickers standard line of mobile pumps, with balanced pressure design and automatic adjustment of both radial and axial clearances.

Circle the number of this item on the post card and get additional information.

10

Low-bed truck has 2 ft. high platform

A new low-bed truck has been developed by Walter Motor Truck Co., 1001-19 Irving Ave., Ridgewood, Queens, Long Island, N. Y. This Model CL, 125 HP, 40,000 GVW, 10-ton nominal capacity, has positive front wheel drive and provides a very low platform height. The low platform height of only 2 ft. permits the advantageous loading, hauling, and unloading of heavy cable reels and other construction equipment, saving valuable time in these operations. High loads can be carried without excessive overall height or center of gravity. Tires are 14.00-24 single, front and rear.

With the large tires with approximately 50% of the total load on the driving tires and the positive drive to the two front wheels, obtained by the Walter automatic torque proportioning differential, there is



Walter Low-Bed Truck Delivered to Consolidated Edison Co., New York

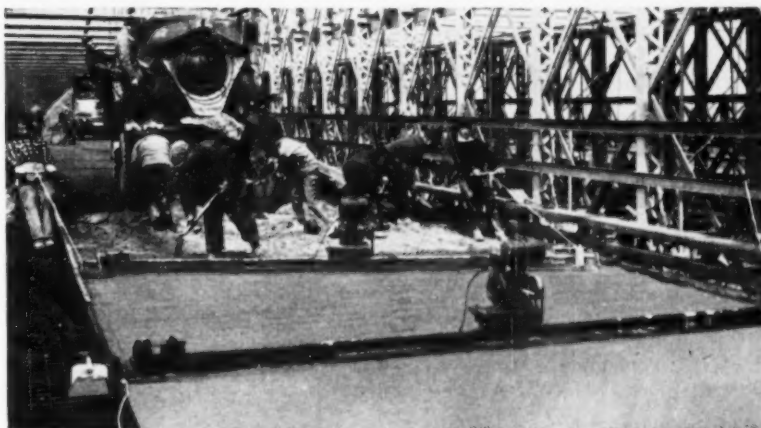
stated to be ample traction to negotiate slippery or soft ground conditions. The hydraulic power steer results in easy, quick steering with minimum driver fatigue. The wide, forward-mounted cab provides greater platform and loading space. The engine is readily accessible with a short hood in front of the wheels. This unit can be provided with a hydraulically operated rear tailgate and loading ramp.

Circle the number of this item on the post card and get additional information.

on the road IT'S MASTER SCREED for speed



and
MASTER SCREED and TURN-A-TROWEL
just can't be beaten as a team
on floor finishing.



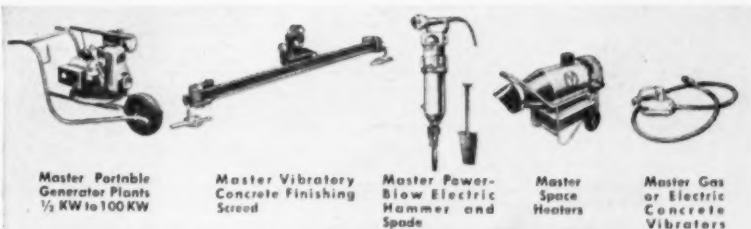
speeds roadwork and floor finishing, too!

MASTER SCREEDS strike off and compact 6,000 square feet per hour, without need of additional vibration. There are MASTER SCREEDS for flat, circular or parabolic surfaces in all sizes. Write for Catalog No. 942. And for ideal floor finishing you can't beat MASTER SCREED teamed with the new scientifically balanced TURN-A-TROWEL for fast, easy finish and mobility.

Only MASTER TURN-A-TROWEL provides quick change from wide compacting trowel to trowel finish. Write for Catalog No. 939.



MASTER VIBRATOR COMPANY • DAYTON 1, OHIO



Master Portable
Generator Plants
½ KW to 100 KW

Master Vibratory
Concrete Finishing
Screed

Master Power-
Blow Electric
Hammer and
Spade

Master
Space
Heaters

Master Gas
or Electric
Concrete
Vibrators

MASTER

BETTER PRODUCTS FOR BIGGER PROFITS

57 ft. long trailer has load capacity of 100 tons



Special Low Boy Trailer for Hauling Electrical Equipment and Process Apparatus for Atomic Energy Plant



A Sauerman Crescent Scraper will repay its moderate initial cost many times over when added to your boom machine as auxiliary equipment. Simple to rig up, it increases the machine's capacity when used on specific job operations mentioned below.

For backfilling, grading and other jobs where material must be moved but not lifted, the conventional casting method is used. The Crescent bites into and gathers the load with the ease of a plowshare, then hauls at ground level and deposits the load automatically when the forward pull is reversed. Machine strain and power consumption required to lift and swing the load to the discharge point are eliminated.

To dig material from a river, deep pit or soft area beyond the reach of the boom, another method is used to rig the Crescent Scraper to the boom machine. For such work the Crescent is suspended by chains from a simple trolley that rides on a track cable extending from the tip of the boom out to a movable anchorage. Digging, hauling and discharge proceed as in the casting operation. Following discharge, the empty scraper is lifted and gravity returned to the excavation point merely by tightening the track cable.

Any boom machine will handle a Crescent of larger size than its regular dragline and clamshell bucket. The Crescent is much lighter, size for size, than these buckets. Digging power and strength are derived from the Crescent's bottomless construction and flowing lines—not from weight of metal. Users of boom machines can obtain full information by writing for illustrated literature describing how other operators use Sauerman Crescent Scrapers on their machines to increase output and reduce costs.



SAUERMAN BROS., INC.

588 S. CLINTON ST., CHICAGO 7, ILL.

A 57 ft. low boy trailer has been built by Dorsey Trailers, Elba, Ala., for the Atomic Energy Commission construction project near Paducah, Ky. It is a Model MTS engineered to accomplish a load capacity of 100 tons. Width is 12 ft. and the rear tires are 16 ply, 12.00 x 20. It was delivered to the AEC in care of F. H. McGraw & Co., Contractors. The huge pieces of electrical equipment and process apparatus for uranium — 235 production plant units necessitated the trailers' special design.

Circle the number of this item on the post card and get additional information.

12

Change from gas to oil in 10 seconds

Easy, fast changeover from gas to oil, or vice versa, is now possible in boiler firing as a result of a new development announced by Cleaver-Brooks Co., 326 East Keefe Ave., Milwaukee 12, Wis. The company's combination gas and/or oil-fired boilers now operate on gas with the oil burner in place. No mechanical or electrical change is necessary to change over from gas to oil and vice versa. Thus, by simply flipping a selector switch on the control panel, to either gas or oil, the proper circuit is set into action. Turning the convenient fuel supply valves completes the entire changeover, and in 10 seconds or less.

Circle the number of this item on the post card and get additional information.

13

Vapor steam cleaner for construction equipment

A new auto-steam heavy-duty vapor steam cleaner for use in the construction field for cleaning all types of stationary and rolling equipment, announced by Aeroll Products Co., Inc., 50 Wesley St., South Hackensack, N. J., provides 100 lb. of steam pressure in 90 seconds, has a com-



Auto Steam Vapor Cleaner

pletely visible panel control, is completely automatic, and has a scientifically balanced swivel gun with gun-control shut off.

Equipped with a heavy-duty ½ h.p. motor, the machine requires no pre-mixing compound, and has an economical sootless atomizing burner with flash-type boiler. According to the manufacturer, Auto-Steam is scientifically balanced for maximum cleaning performance — at medium pressures. It produces a thoroughly penetrating, saturated solution, hot enough to clean perfectly without ever burning, and wet enough to carry off the residue.

Circle the number of this item on the post card and get additional information.

Machine prints traffic and safety lines

Traffic and safety lines that are printed, rather than brushed or sprayed, are now possible as the result of an improved all-metal, sled-type, roller spreader perfected for its universal controlled-flow traffic-line paint-striper by the Line Marker Division of Universal Yonkers Corp., 137 Alexander St., Yonkers 2, N. Y. Maintenance requirement for the spreader is only a can of



Machine for Printing Traffic Lines

kerosene or ordinary paint thinner for immersion when not in use. This is stated to be all the maintenance the entire machine requires.

The machine's simple maintenance stems from the fact that it is gravity fed and has no power unit. Receiving the paint from the gravity line, a distribution apron feeds it evenly to finger rollers which make the impression very much as ink rollers on a printing press. The machines are used with excellent results on any surface such as black top, macadam, concrete, asphalt or wood. Offset in operation, it allows the operator a clear view of the line at all times. The controlled flow is stated to insure steady, even application.

Circle the number of this item on the post card and get additional information.

15

New type grease seal for tractors

A new type grease seal for Caterpillar D-4, D-6, D-7, D-8, and International TD-24 tractors has been announced by Sure-Seal Equipment Co., 2424 East Burnside St., Portland, Oregon. It is stated the new seals will not leak or puncture, due to high



Cut-a-way View, Sure-Seal Grease Seal

pressure lubrication methods. Solid cast metal slides that have no holes, prevent lubricating grease, when inserted under pressure, from puncturing the rubber seal. Final drive bellows seals for D-7 and D-8 tractors are also available manufactured to the same general design.

Circle the number of this item on the post card and get additional information.

THE GORMAN-RUPP DIAPHRAGM PUMP

WATCH
THIS SPACE
FOR

Another
First

NOT ONLY BRAND NEW!

It's a New Concept—a New Design Approach—

THE FIRST REAL IMPROVEMENT EVER

in Diaphragm Pumps!

- ★ As Much as 400% More Pumping!
- ★ On LESS Fuel—yes, LESS FUEL!
- ★ Much Longer Life—PUMP and DIAPHRAGM!
- ★ No SHOCK! No JERK! No JUMP!

ANOTHER FIRST FOR
GORMAN-RUPP DESIGN AND
PUMP ENGINEERING DEVELOPMENT

SEE IT IN THIS MAGAZINE



WATCH FOR MAY ISSUE, PAGE 95

THE GORMAN-RUPP COMPANY

MANFIELD, OHIO

TRIPLEX BACKFILL TAMPERS

Save 30% in Tool Investment

Reduce Compressed Air
Consumption 50%

Release **FOUR MEN** for
Productive Work
on Your Job

**SAVE 75% ON YOUR
BACKFILLING COSTS**

Write for Information



GUNDERSON-TAYLOR MACHINERY COMPANY

988 Cherokee Street • Denver 4, Colorado

Between job **MAGIC CARPET** for slow travelers



MILLER Model "B" Tilt-Top!

Time saved between jobs means more profit on every job. One man can load heavy units in less than two minutes. Operator drives unit on platform—it tilts, locks . . . and he's on his way with no lost motion. You'll find MILLER Tilt-Top the extra trailer for extra production.

MILLER Tilt-Top saves even more time than other more cumbersome trailers with its better maneuverability, and easier backing. Best of all, MILLER'S exclusive mass production of Tilt-Top trailers cuts original cost for you. Get this extra help . . . extra production now — see your MILLER dealer today!

MILLER  **research engineers**

Trade mark reg

Dept. C-4, 458 So. 92nd Street, Milwaukee 14, Wis.

**handier
easy-to-back
priced right**

Model "B" 10 ton \$1175
Optional equipment (priced extra)
16' long platform (8'x14' standard),
hydraulic tilt control, 2 speed
hand winch and electric brakes.

16

Gradall supplied with new undercarriage

The Gradall, multi-purpose earthmover and construction machine of The Warner & Swasey Co., 8701 Carnegie Ave., Cleveland 3, O., is now being supplied with a new undercarriage specifically designed for maximum operating efficiency of the unit as a whole. The new carrier is stated to provide the ideal balance for Gradall operation, distributing the load in reference to



New Gradall Carrier Is Heavier, Features
Shorter Wheel Base for Maximum
Maneuverability

the frame so that the entire unit is tip-proof without the need for outriggers.

At the same time, the new carrier's wheel base is 18 per cent shorter than has hitherto been available, making for maximum maneuverability. Wheel base is now 162 in., carrying a frame 224 1/4 in. in overall length. With a chassis weight of 12,550 lb., the carrier is the heaviest ever to be used for Gradall mounting. The frame is ruggedly constructed of extra-heavy 8 x 10 in. H-beam having a section modulus of 40 lb. Gross vehicle weight is 40,000 lb.

The engine used in the new undercarriage is a 427 cu. in. L-head unit developing 140 H.P. at 2800 rpm. An oversize radiator is used to insure ample cooling even when running idle at high ambient temperatures. A 13-in. vibration-dampened clutch is incorporated in the design, as are Timken axles and Bendix-Westinghouse air brakes. The new Gradall carrier is also available, if desired, with a front driving axle in a 6 x 6 model. Available for the first time as an optional accessory is a remote control carrier drive system making possible one-man operation of the Gradall.

Circle the number of this item on the post card and get additional information.

17

Conveyor to reach into inaccessible places

An all aluminum conveyor announced by Franco Sales Co., 6713 Formosa Way, Pittsburgh, 8, Pa., was designed to reach into inaccessible places, carrying heavy loads of wet concrete, earth and sand. The conveyor has shock plates throughout the entire length. There are clean outs at both tail and head ends. Anti-friction troughing



Franco SM All Aluminum Conveyor

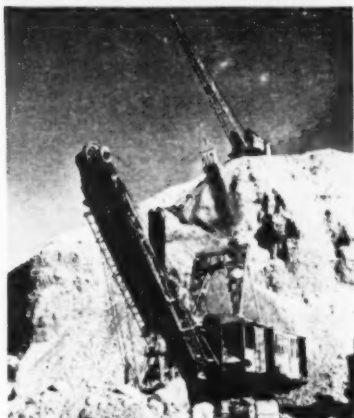
carriers. All bearings are sealed in. Wheels are at a balance point, and the entire wheel assembly can easily be removed where it may be necessary to extend the conveyor into small openings.

Circle the number of this item on the post card and get additional information.

Tuffy



7 Ways Better for DRAGLINES!



"Gives Better Service Than Any Other Rope"

Says Maintenance Superintendent of Arkansas Construction Company
(Name on Request)

(1) Wires of finest steel in a (2) construction specially designed for universal dragline service give Tuffy (3) extra flexibility . . . make it (4) extra easy to handle. You'll find Tuffy Draglines (5) spool better and (6) ride better on grooves. And you get (7) maximum abrasive resistance since Tuffy materials are toughened to withstand *more* abrasive wear! Time and again, Tuffy Draglines stand up under more days of service and move far more yardage than the best previous average obtained by many operators . . . operating in dry dirt, wet dirt, sand, gravel, rock and minerals! To order, just ask for the length, the size and the name—TUFFY DRAGLINE!

Send For This FREE Folder on Tuffy DRAGLINES



MAIL COUPON TODAY

UNION WIRE ROPE CORP.
Specialists in Wire Rope and Braided Wire Fabric

2200 Manchester Ave., Kansas City 3, Mo.

Please send me the FREE illustrated folder on Tuffy Dragline.

Firm Name _____

By _____ Title _____

Address _____

City _____ Zone _____ State _____

18

Self-contained, 1-man concrete vibrator

A new completely self-contained, one-man concrete vibrator announced by Mall Tool Co., 7725 South Chicago Ave., Chicago 19, Ill., is a 2 MGV gasoline engine unit.



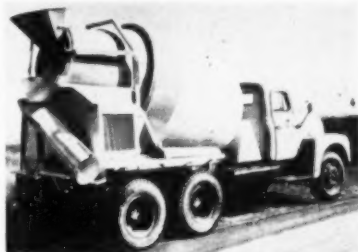
New Mall Concrete Vibrator

Designed for faster, easier narrow form vibrating from catwalks. Its 5 HP, 21 lb. engine is easily supported with the fingers. Circle the number of this item on the post card and get additional information.

19

7 1/4 cu. yd. concrete mixer has new feature

A new 6 to 7 1/4 cu. yd. concrete mixer has been announced by Willard Concrete Machinery Sales Co., 11700 Wright Road, Lynwood, Calif. New feature is movement



New 6 to 7 1/4 Cu. Yd. Concrete Mixer

of the center of gravity to a point which allows greater payloads while still maintaining legal distribution of the weight on the truck's axles. The mixer is suitable for mounting on ten-wheel trucks with 175 in. wheelbase. Power for the drum is furnished by a transverse-mounted, 93 HP Ford OHV Industrial 6 and basic Ford power transmission assembly.

Overall gear ratio through the transmission and final chain drive is 281 to 1. With the engine in the rear, the main weight of the concrete is thrown far forward to equalize axle loads. Construction of the mixer's frame is unusually strong and the drum itself is stiffened by two continuously welded overlapping mixing spirals. Both charging and discharging hoppers are designed with large collecting areas. The folding chute is made of 1/4 in. steel and extends 8 ft. 6 in. from the swivel center.

Circle the number of this item on the post card and get additional information.

(Continued on page 124)



Tuffy

stays with Scraper Longer in Tough Going!



"No Other Rope Even Comes Close to Comparing with Tuffy Scraper Rope"

Says an Iowa Contractor
(Name on Request)

More and more operators of scrapers are switching to Tuffy Scraper Rope . . . and there are good reasons why! Tuffy is so designed to resist drum crushing caused by rope cross-overs—flexible enough to withstand sharp bending and hug sheave grooves. Tuffy's good slack line behavior helps it hold up better under the shock of load impact on slack line—a condition multiplied in scraper service. Remember, Tuffy is easy to order; just specify length, diameter and "Tuffy!"

Send For This FREE Folder on Tuffy SCRAPER Rope



MAIL COUPON TODAY

UNION WIRE ROPE CORP.
Specialists in Wire Rope and Braided Wire Fabric

2200 Manchester Ave., Kansas City 3, Mo.

Please send me my copy of the FREE illustrated folder on Tuffy Scraper Rope.

Firm Name _____

By _____ Title _____

Address _____

City _____ Zone _____ State _____

CURRENT TRADE LITERATURE

Listed below are brief notes on bulletins, booklets, catalogs, brochures and circulars of particular interest to contractors and engineers. This current trade literature is yours for the asking. Just circle the numbers of the desired items on the Readers Service Card and mail. We will do the rest.

81 TORQUE CONVERTERS FOR TRUCKS: Twin Disc Clutch Co. 12-page bulletin explaining how truck-type 3-stage hydraulic torque converter drives improves performance, prolong equipment life and prevent operator fatigue in heavy hauling.

82 MAGNET REEL AND TAGLINE: McCaffrey-Ruddock Tagline Corp. 16-page bulletin on installation, operation and care of Rud-O-Matic magnet reel and tagline. Describes methods for stepping up efficiency in magnet operations and gives data on use of tagline with clamshell bucket.

83 PAVEMENT SLAB BREAKER: Ottawa Steel Products, Inc. 4-page bulletin illustrating and describing "Ottawa" Hydro Hammer, a self propelled, one-man operated machine, claimed to save up to 50% in cutting pavement for trenches and tamping for backfills.

84 STRUCTURAL STEEL MARKER: Markal Co. 16-page circular describes Markal Paintstiks and tells of their many uses in making permanent, fade-proof and weatherproof identification marks in the construction industry.

85 LUBRICANTS: Lubriplate Division, Fiske Brothers Refining Co. 56-page data book on lubriplate, brand name of the line of well known specialized lubricants produced in various type of fluids and greases for a wide diversity of applications. Lubriplate recommendations for trucks, tractors, quarry equipment and construction equipment are given in the data book, together with much information on various lubrication problems.

86 BACK-RIP SCARIFIERS: Preco Incorporated. 4-page circular illustrating and describing Preco back-rib scarifier. These are welded to reverse side of bulldozer blade and rip and scarify when bulldozer is backing up and float freely when blading forward.

87 PRESTRESSED CONCRETE: Stressteel Corporation. Handbook describing large diameter, high strength steel tensioning units and their use in prestressing of concrete. These units consist of bars 1/2-in. to 1 1/4 in. in diameter and up to 80 ft. in length with end anchorages.

88 ASPHALT PLANTS: Standard Steel Corporation. 4-page bulletin describes important improvements and special features of recently introduced RB series of asphalt plants in 500 to 5000 lb. batch capacities.

89 TRUCK LOADER: Ernest Holmes Co. 4-page catalog illustrating and describing the Holmes Owen loader. The loader equipment installed on standard 1 1/2 to 2 ton trucks converts the dump truck and driver into an independent working unit capable of doing all these jobs—loading, hauling and dumping.

90 GRAVEL ROAD STABILIZATION: International Rock Salt Co. Booklet contains specifications about the type and quantity of aggregates that should be used for best results in a rock salt stabilizing road.

91 MONOTUBE STEEL PILES: The Union Metal Co. 24-page catalog on Monotube fluted steel piles contains complete descriptive information and simplified specifying data. Typical installations are illustrated and test driving data given.

92 PUMPS: Homelite Corporation. 12-page booklet on Homelite carry-all gasoline engine-driven self-priming

centrifugal pumps gives practical information on choosing best types of pumps for various pumping requirements.

93 SANDBLASTING MACHINES: Sandstorm Manufacturing Co. 2-page bulletin on Sanstorm sand and blasting machines. It is claimed these machines will not stop or plug when using any type of abrasive that will pass through the blasting nozzle. Four models are illustrated and data on them given.

94 PORTABLE GASOLINE HAMMER: Barco Manufacturing Co. 8-page bulletin describing application of portable gasoline hammers in general construction, municipal and mining fields.

95 HIGHWAY MAINTENANCE: Calcium Chloride Institute. 36-page booklet on maintenance of unpaved highways. Contains helpful procedures for application of calcium chloride and maintenance of roads in all seasons.

96 POWER ROLLER: Consolidated Industries, Inc. 4-page catalog illustrating and describing the Con-Sol rollers. These rollers are available in two models: a lawn roller with weight adjustable between 300 and 1200 lb. and an all-purpose roller with weight adjustable between 375 and 1400 lbs. These rollers are used for highway patching jobs. Other uses are shown in catalog.

97 TIMBER RESEARCH: Timber Engineering Co. 32-page booklet describing developments in engineering and timber research that have resulted in economies in time, material and labor in the use of lumber.

98 PUMPS: Marlow Pumps 4-page bulletin covers complete line of Marlow centrifugal and other pumps. Contains pictures of representative units and general descriptive matter covering each type of pump.

99 HYDRAULIC POWER STEERING BOOSTERS: Garrison Mfg. Co. 4-page circular on Garrison hydraulic boosters. These boosters are claimed to increase flexibility of graders, trucks and other equipment by easing steering effort. They also eliminate "wheel-flip" and kickback, and provide adequate power to turn wheels without effort at standstill if required.

100 WEATHER GUIDE: The Gallon Iron Works and Mfg. Co. Booklet containing 16 four-color photographs of different types of skies, with simple explanations of the weather they foretell. It is claimed that with this booklet the weather can be forecast with remarkable accuracy.

101 BATCH WEIGHING: Hardy Scales Co. 6-page folder on continuous automatic batch weighing. This system eliminates bottlenecks and weighs materials on continuous flow accurately, automatically, without interruption. Permanent printed record is provided.

102 DIESEL ENGINES: Ingersoll-Rand Co. 16-page booklet containing wash drawings, installation views and diagrams to show why the T-S diesel engine is claimed to be a smaller, lighter but fully heavy-duty engine.

103 PIT AND QUARRY EQUIPMENT: Pioneer Engineering Works. 16-page catalog on "Basic Units" for stationary crushing, screening and washing plants. Explains purpose, features and gives specifications of Pioneer crushers, feeders, conveyors,

vibrating screens, revolving screens, scrubbers, dehydrators, bins and related units.

104 BALL BEARING SWIVELS: General Machine & Welding Works. 10-page bulletin on Miller ball bearing swivels for cables, chains, tension rods, etc., that are claimed to be absolutely free to rotate under very heavy loads.

105 AIR TOOLS FOR CONSTRUCTION WORK: Schramm, Inc. 8-page bulletin, containing illustrations, descriptions and specifications for rock drills, wagon drills, paving breakers and attachments, breakers, diggers and tools, tampers and vibrators, pneumatic saws, and miscellaneous tools and hose.

106 PAVING MAINTENANCE: American Bitumuls & Asphalt Co. 24-page booklet on use of Bitumuls emulsified asphalt in road maintenance work—86 photographs with concise descriptive material are used to illustrate the use of Bitumuls emulsified asphalt in repaving every type of paved surface.

107 TRAILERS AND SEMI-TRAILERS: Talbert Construction Equipment Co. 24-page catalog covering its line of low-bed trailers, dump semi-trailers and mobile crane mounts. Line includes removable gooseneck heavy duty trailers in 10 ton to 75 ton capacities and fixed and removable gooseneck trailers in 10-ton to 30-ton capacities.

108 LAND CLEARING WINCH: Al Evans Winch. 8-page catalog on Al Evans winch which was designed especially for clearing and grubbing. The winch has a drum shift giving two speeds and neutral. It has an adjustable handle dog assuring perfect mesh of pinion gear teeth at all times. It has two-speed power take-off transmission. The drum holds 550 ft. of 3/4 in. cable.

109 IDENTIFYING WROUGHT IRON PIPE: A. M. Byers Co. Brochure describes five tests for positive identification of wrought iron pipe, and tells why recognition of piping material is important and explains how to protect against the use of substitutes.

110 HIGH TENSILE STEEL BOLTS: Pittsburgh Screw and Bolt Corporation. 12-page technical bulletin on use of steel bolts in bridge and building construction. It includes a research report on effect of various fasteners on fatigue strength of a structural joint; also information and case histories emphasizing strength and cost-saving characteristics of high tensile steel bolts.

111 GUARD RAIL: United Steel Fabricators, Inc. 8-page booklet on USF barrier-beam guard rail, contains illustrations of typical installations, complete engineering data and drawings and erective instructions.

112 CONSTRUCTION EQUIPMENT LUBRICATION: The Euclid Road Machinery Co. 26-page booklet presenting the whys and wherefores of lubrication. It not only details procedures for Euclid equipment, but discusses the fundamentals of lubrication.

113 WIRE ROPE AND CHAIN FITTINGS: The Thomas Laughlin Co. Catalog No. 150 contains a complete listing of almost 1500 Laughlin products including the complete line of drop forged wire-rope and chain fittings. Some of these products are exclusive with Laughlin.

114 CONSTRUCTION EQUIPMENT WIPING CLOTHS: Industrial Wiping Cloth Co. Leaflet on "Wiper Brand" quality wiping cloths. Ten brands of mill ends and 16 brands of domestic wipers are listed and described.

Bituminous **ROADS AND STREETS**



Cover Scene

Sealing work in progress in Kane County, Illinois. This county awards surface treatment work to contract as a general practice.

Published by: Gilllette Publishing Company
22 West Maple Street, Chicago 10, Illinois

Asphalt Membranes on the Gulf Freeway
Minnesota Improves its Sealing Methods
Information Wanted on Bituminous Activities
Notes on Asphalt Technologists' Meeting

APRIL, 1953

WHY YOU GET *IMPROVED HEATING,* *BETTER ROADABILITY,* *EQUALIZED LOAD DISTRIBUTION*



Etnyre Tank is a
long, low oval

ETNYRE TANK

Circulating System
BELOW Tank

Short, High
TANK

Circulation
System

Circulating System
on level with and
at one end of Tank

Get the Facts! Here is an exclusive Etnyre feature of interest to every owner and operator of a bituminous distributor. It's the secret of Etnyre's success in building the finest spraying mechanism known today.

On a Tank of any capacity, on any given cab to axle, Etnyre uses a longer Tank with a lower center of gravity. This is possible because the Etnyre Circulating System is located **BELOW** the Tank. The results are:

Improved heating...more flue area per gallon of material—longer Tank allows for smaller oval, longer flues—less distance for heated material to travel from

flues throughout load. Stack temperature reduced because of faster dissipation of heat through material.

You get *better roadability*—the lower center of gravity makes possible faster, safer traveling speeds to and from the job—also improved appearance.

You get *equalized load distribution*—which saves on chassis and tires, makes for easier handling, adds years to the life of your truck.

This is just *one* of dozens of exclusive Etnyre advantages. For the complete story, phone your nearby Etnyre Dealer or get in touch with us today!

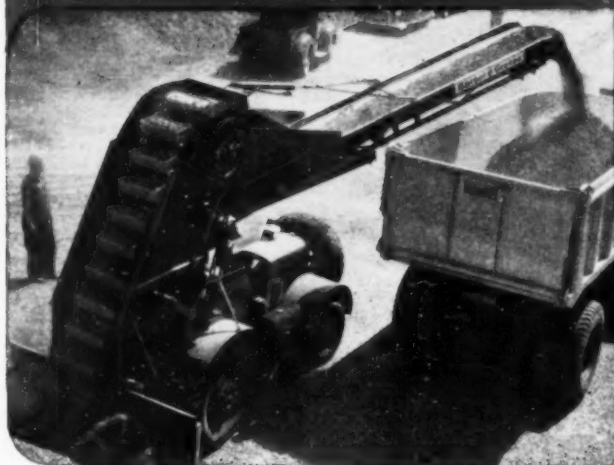
E. D. ETNYRE & CO., Oregon, Ill.

SEE YOUR ETNYRE DEALER

ETNYRE
"Black-Topper"
BITUMINOUS DISTRIBUTORS



FASTEST, EASIEST WAY TO LOAD MATERIAL FROM STOCK PILE INTO TRUCKS



BARBER-GREENE BUCKET LOADERS



No other machine, no other method can equal the speed and efficiency of Barber-Greene Bucket Loaders in loading sand, gravel, and other similar bulk materials from stock piles and storage areas into trucks. At rates up to 3 cubic yards per minute, these loaders dig, lift and convey bulk material in one continuous high capacity

flow, virtually eliminating truck waiting and driver waiting time. Simple to operate, easy to understand. The truck driver can operate the loader to load his own truck. Backed by over 1,000,000,000 yards of material handled by Barber-Greene Loaders, they represent the ultimate in low-cost loading efficiency.

A TYPE THAT WILL DO YOUR JOB BEST

MODEL 543

This self-propelled loader is mounted on a tractor-type chassis and pneumatic tires for traveling from job to job at rates up to 15 m.p.h. Equipped with a hydraulic swivel conveyor, it has the reach to load highest trucks, long trucks and trailers, and trim the load to full capacity every time. Capacity—3 cubic yards per minute. Easily converted for loading coal or snow.



MODEL 82A

This crawler-mounted, 3 cubic-yard per-minute Bucket Loader has the stability so often necessary in typical truck loading operations—in pits, on soft or rocky ground, etc. Built for heavy, continuous operations, it is economical enough to justify itself in intermittent service. Complete accessories are available, including single and double deck vibrating screens for loading, screening and scalping simultaneously.

Send for catalogs!

Complete and detailed information on the Model 543 and 82A is contained in individual catalogs available at your request. Ask your Barber-Greene Distributor or write directly to the address below.

Barber-Greene

Aurora, Illinois, U. S. A.



**BIGGEST NEWS!
IN THE ASPHALT
PAVING INDUSTRY**

MADSEN

Announces!

THE NEW MADSEN MODEL 481

**Portable
4000-lb.
BATCH CAPACITY
ASPHALT PLANT**



With a background of 39 years in building asphalt plants MADSEN now gives the industry the new MADSEN Model 481 . . . a batch-type plant which we believe excels all others in capacity, desirable features, superior construction and design.

Right from the start, the advantages and flexibility of the MADSEN Model 481 are apparent. It is a portable plant, designed and engineered for faster and easier set-up. Incorporating the famous MADSEN Twin-Shaft Pug Mill Mixer and the patented MADSEN Pressure Injection system together with superior dryer and aggregate bin design, and many other outstanding features . . . the MADSEN Model 481 gives you that high hourly production that puts more money in your pocket at the end of the job.

Batch-type asphalt plants meet the exacting requirements of today's specifications and the MADSEN Model 481 gives you more desirable features than any other plant of this type. Here are a few of the exclusive MADSEN features:

- NEW** Sectional Mixer Liners . . . externally removable (patent applied for).
- NEW** Triple Discharge Bin Gates . . . withdraws material from bin uniformly, prevents segregation, fills weigh-box in a level manner (patent applied for).
- NEW** Roller-Mounted Weigh-Box . . . rolls out of the way for mixer accessibility.
- NEW** Portable Design . . . built-in gooseneck, fifth wheel plate, king pin and rear axle mounting brackets.
- NEW** 8' 2" Wide . . . legal width and height crane-erecting box units.
- NEW** Mixer Operator Station on End of Plant . . . provides better view . . . cleaner, out of the way . . . away from fumes or heat.
- NEW** Enclosed Gear Box Drive to Pug Mill V-belt from motor or engine to pulley on gear box with pinion to Pug Mill Mixer.

- NEW** Individual Motors . . . on hot elevator, screen, pressure-injection system pump, dust elevator, bin and screw.
- NEW** All Air Cylinder Operation . . . on bin gates (4), weigh-box, mixer and asphalt injection control valve. Electrically operated through solenoid 4-way air valves.
- NEW** Improved Sampling Mechanism . . . for getting bin samples easier, quicker and more accurately.
- NEW** Three Sizes of Screens Optional . . . 42" x 12', 48" x 12' double-deck, or 48" x 14' Symons 2 1/2-deck vibrating screens.
- NEW** Portable Hot Elevator . . . which may be hauled in one piece as a trailer or broken down in sections.
- NEW** Press-broke Steel Columns and Legs . . . for unobstructed appearance and accessibility without interference.
- NEW** Accent on Safety . . . provided by improved guards, platforms and railings for safer maintenance.

**GREATER PRODUCTION
MORE MONEY-MAKING
FEATURES**

Before you buy any asphalt plant . . . Get the complete story on the new MADSEN Model 481. If your requirements call for a larger or smaller plant capacity MADSEN has a complete line to meet your needs.

MADSEN IRON WORKS, INC.
P. O. BOX 589 • HUNTINGTON PARK, CALIF.

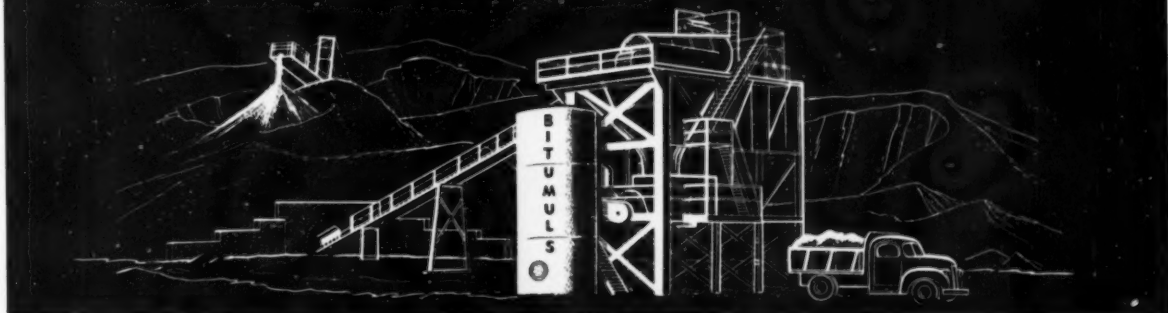


Write today for complete details and specifications on the Model 481 4000-lb. Asphalt Plant.

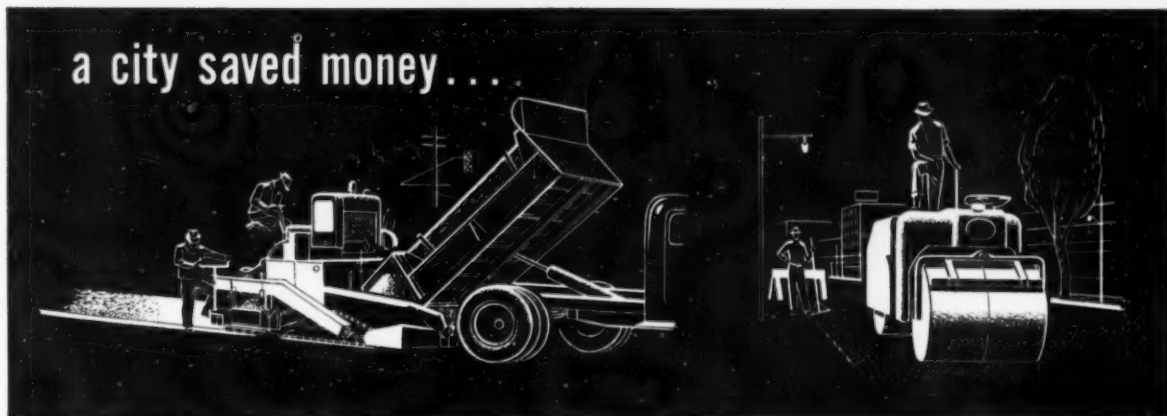
Equipment that Serves

B I T U M U L S I S V E R S A T I L E

Here's how a contractor made money...



a city saved money...



... by bringing low-cost native aggregates
up to "paving" standards with versatile BITUMULS[®]

IN EVERY LOCALITY there are low-cost aggregates—decomposed granite, red rock, bank-run gravel, shell, etc. Untreated, these materials are rarely suitable for base construction. When cold-mixed with small amounts of Bitumuls, however, they become stable and easily pass specification requirements for this type of work.

Municipalities get lowest paving costs when *maximum* use is made of these native aggregates and local plant mixing equipment. Typical are conditions in Oakland, California, where a local contractor conveyor-feeds waste bank-run gravel directly into hoppers that feed the material into his pug-mill. There it is mixed with a small quantity of Bitumuls and dropped directly into trucks that haul it to the job. This material, mixed cold and with damp aggregate, is ready for

immediate compaction as base material on streets throughout the city. Costs are low due to use of marginal aggregate and utilization of spare time of the mix plant. *This results in profits to the contractor and lower costs to the city for high bearing base material.*

The wearing course may be asphaltic concrete from the same plant but with approved aggregate, or macadams bound with quick-setting grades of Bitumuls.

Throughout the country, Bitumuls is readily available from strategically located plants for on-job delivery.

There are Bitumuls Engineers in your area who know aggregate sources. They welcome an opportunity to consult you about your paving needs.

**AMERICAN
Bitumuls & Asphalt
COMPANY**

200 BUSH STREET • SAN FRANCISCO 4, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala.
Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo.
Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 6, D. C. San Juan 23, P. R.

Tested, dependable results



NOSTRIP

*The time-proven Bonding and Anti-Stripping
Agent for Bituminous Materials*

A product of
MAGUIRE INDUSTRIES INC.
182-27 LIBERTY AVE.
JAMAICA 33, NEW YORK
Send today for factual data

Order in drums
from your local dealer or
ready-mixed in asphalt from
your refinery

VIEWS AND COMMENTS

By H. G. Nevitt

Information, Please

Our recent discussion of moisture problems prompted the editor to wonder about a similar approach to the problem of stripping and its cure. We agreed that a common-sense survey of this situation might be in order, but far from easy. We hope to get to it in due course; meanwhile some preliminary remarks might be helpful.

The present emphasis on stripping seems to us at the same time too great and too little. The total number of failures is so small as to throw doubt on the expense noted in some areas devoted to discussions and means to prevent them. These failures get disproportionate attention because they are either surprising or spectacular in their occurrence.

On the other hand the cost (in excessive maintenance or surface reinforcement found necessary) of jobs which do not fail but suffer from partial stripping is likewise probably excessive, and this phase of the problem deserves more attention. This latter situation usually occurs with aggregates which contain only a portion of particles exhibiting stripping, or stripping on only a portion of the mineral surfaces (for sound geological or mineralogical reasons) with the tendency to strip consequently not recognized. Visual tests often give no hint of the condition; and stability tests before and after stripping, while the correct approach, may not indicate the situation if the immersion is of insufficient duration.

Furthermore, there seems reason to question the use of the percentage loss in compressive strength as an index of the possible unsuitability of the aggregate for use. The trouble may arise from an ultimate drop in stability below the required value for the conditions rather than in its relative loss; or from changes in friction and cohesion in failure yet not corresponding to a marked reduction in the compressive strength.

Various Agents Available

Agents to prevent or minimize stripping are being continually reported on or offered for use. This fact alone might raise some doubt as to the sufficiency of maintaining visually satisfactory coating of the aggregate, or even the stability where this test is brought in. Incidentally some allegedly good stripping preventatives fail under this latter criterion. To us, without more economic evidence than has so far been advanced, the blanket use of agents to reduce the possibility of stripping seems a questionable practice. Not all asphalt-aggregate mixtures are

helped by an additive; each individual use should be justified by both tests and the need.

Fundamental facts seem badly needed, both in the mechanism of stripping prevention and in actual experience, with the use of materials or methods for this purpose. The data must be complete and unbiased, with some attention likewise given to the economics of alternative courses of action. There seems to be good ground for the suspicion that too often the program followed has been based on a far from objective analysis, coupled with a tendency to correspondingly report the later results in such light as to justify the decision rather than give guidance for future action. There is nothing which tends to clarify a situation as well as widespread, fair, and clear-cut reports of experience from various sources. These may be, frequently are, conflicting but usually in the end they lead to the solution.

More Facts Wanted

We believe this will be to the benefit of everyone concerned. Users and suppliers of the major highway materials and equipment will certainly gain; money unnecessarily spent on stripping prevention does them no good. Even the additive manufacturers should benefit in the end. It is doubtful if the poor products ever pay back their promotion expense, so they should be eliminated before this becomes appreciable, and those with real merit will have greater acceptance when their true value and proper place in the picture have been evaluated.

So let us have more facts and less theorizing on the benefits from stripping prevention programs. The fundamental idea, that moisture which causes damage might be controlled by proper additives or procedures, was long ago accepted by the industry. Mere discussion of this basic point, or its use as an argument to get engineers to try specific agents, gets us nowhere. What is needed is a clear understanding of just how any particular agent works, sound reasons for believing that this mechanism prevents or overcomes the damage noted in practice, and experience data to confirm these conclusions.

Practical research (such as some highway organizations, and at least one additive manufacturer, are carrying on), clearly thought out programs in the field, and objective reporting of the results by everyone will give a mass of data from which the true facts can be discerned.

Asphalt Membranes

—Their Service Record on Gulf Freeway Fills

Embankment subgrade totaling over 400,000 cubic yards of high-shrinkage clay soil was enveloped in an asphalt membrane during construction of this expressway. Subsequent performance of the membrane in protecting the subgrade against moisture infiltration and drying out, is reviewed in this article.

A PAPER presented at the recent meeting of the Association of Asphalt Paving Technologists at Houston, Texas, by W. J. Van London, Engineer-Manager of the Houston-Urban Freeway, has made public the use of a new type of earth-fill stabilization using asphaltic membranes which has now given more than 5 years of successful service.

Construction of The Gulf Freeway, a modern 6-lane limited-access highway extending south from Houston as Route U. S. 75 towards Galveston, was initiated in 1947 and completed early in 1950. A number of overpasses required the construction of a series of earth fills, averaging a 10-ft. maximum height, from 60 to 200 ft. wide and totaling more than 2 miles. Economic considerations required the use of local soils of high plasticity and very adverse shrinkage characteristics. Previous experience with these

soils indicated that severe subgrade movements might be expected under the portland cement concrete pavement unless some means for stabilizing the moisture in these fills were used.

This stabilization of moisture content has been successfully obtained through the use of asphalt membranes, by which the cores of all fills were enveloped and isolated from moisture loss or absorption. The effectiveness of the method has been proven by more than 300 tests made on the enveloped soils. These tests indicate negligible moisture change in the soil over a 5-year period.

Wide Shrinkage Cracks

In contrast, and as an indication of the effects which would have occurred under the pavement structures had the fill cores not been stabilized,

cracks in the soil in embankments due to drying have sometimes exceeded one to two foot widths, with numerous cracks of lesser widths, these cracks extending to the asphalt membrane, but not beyond. Had these cracks extended below the pavement, serious damage would have occurred.

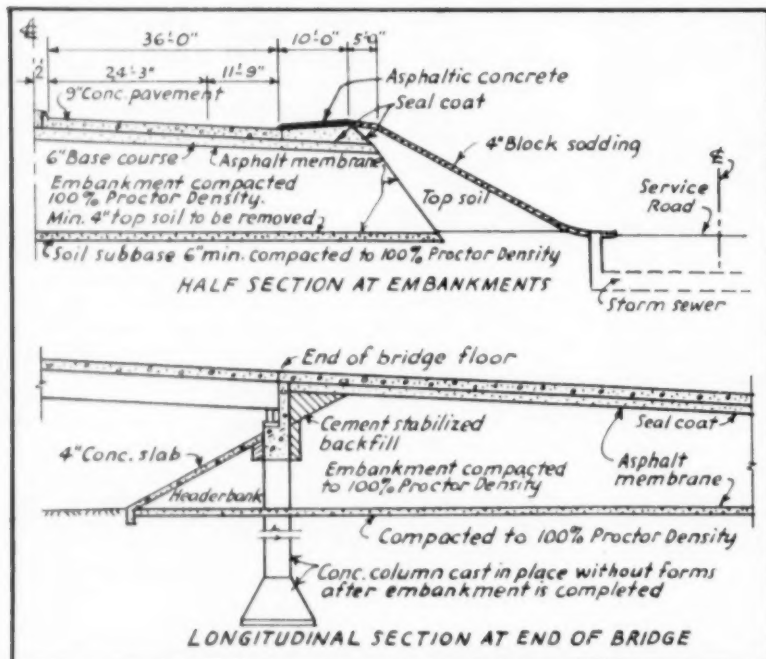
A total of 400,000 cu. yd. of earth fill was "wrapped up" in asphalt membrane, this construction requiring about 325,000 gal. of 50-60 penetration, paving grade asphalt cement. This latter type of material, while not as tough as the more recently developed special asphalts, has proven satisfactory in this installation. The asphalt was applied at the rate of about 1 gal. per sq. yd., giving a membrane with an average thickness of about $\frac{3}{8}$ in. Both distributor bar and hand-spray applications were used.

Construction procedures consisted of stripping all fill areas of sod and top-soil, then compacting the exposed subgrade to a 6-in. depth by sheep-foot rollers. Over this compacted surface, the basic asphaltic membrane was applied at a temperature of 350-400° F., this portion being applied by distributor bar. Over this membrane, after cooling, was placed a loose 6-in. lift of soil, this soil being placed by bulldozers working from the end of a strip and by motorgraders working from the shoulders. To avoid possible damage to the membrane, no attempt was made to compact this layer of soil. All succeeding lifts were placed by conventional means at normal moisture contents and compacted by sheepfoot rollers to 100 per cent of Proctor density.

Completing the Membrane

All slopes were constructed wider than required, and were then cut back with motorgraders to 1½:1 slopes, exposing the outer edges of the base membrane. The exposed surfaces were sprinkled and asphalt applied over the entire top surface and side-slopes, using the same quantity. The top areas were shot with distributor bars while side slopes were covered by means of hand-sprays.

Immediately following application of the upper portion of the membranes, top-soil, previously excavated from the fill area, was placed over the shoulder portion of the membrane to give 4:1 or flatter slopes, while base course material, of the type specified, was placed over the upper, roadway surface. The latter, for the major portion of the work, consisted of a



★ Figure 1. Typical embankment sections, Gulf Freeway, Houston, Texas, showing details of the asphalt membrane envelope

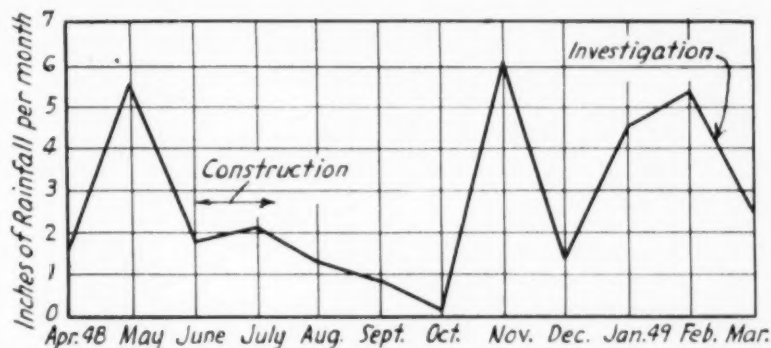
sand-shell mixture. A thin covering of earth was used over the asphalt membrane where concrete rip-rap slab was used adjacent to waterways.

All fills were completed before construction of bridge piers was begun. These piers were constructed by boring 30-in. diameter holes through the fill sections, the bottoms being flared and poured without forms in the excavated sections. Where the asphalt membranes were cut through in these borings, a seal was effected either by hand spraying additional asphalt after the columns were completed, or through use of a very wet concrete mix placed over an exposed portion of the asphalt membrane and against the column.

Since the enveloped fills were constructed prior to building the bridge piers, the drilling of the pier holes afforded an excellent opportunity to inspect the condition of the enveloped soils and membranes after approximately a one year period. Moisture and density tests were taken at approximately two foot intervals in the pier holes. These tests indicated essentially the same moisture and density values as were obtained during construction. In addition, it was found that all asphalt membranes were easily located and were in proper position with surprisingly uniform thickness. It was also observed that at a distance of about 8 in. below the base membrane, the soil was noticeably softer and wetter than that immediately below the membrane. No voids or loose, uncompacted soil was found in the layer of soil immediately above the base membrane, although this layer had not been compacted directly during construction. It was evident that pressures exerted on this layer during subsequent compaction operations above, served to adequately compact the initial layer. The results of moisture tests made during placing of pier holes is given in Table I.

Severe Exposure

The Gulf Freeway was built in short completed sections, permitting maximum use of developed sections. However, in some sections, the fills were completed a year or more in advance of pavement construction. These enveloped fills were surfaced with a 6-in. layer of sand-shell base material for protection over winter months. The sand-shell mixtures were placed directly over the upper portion of the asphalt membrane envelope. Several such sections were exposed to more than four months of very dry weather, followed by periods of heavy rainfall, one area receiving more than 9 in. of rain in less than 18 hours. The condition of the membranes and the underlying fill sections were determined the following spring by removing the sand-shell cover and cutting through the membrane. In all cases, the membrane was found intact and the soil beneath the mem-



★ Figure 2. Rainfall occurring during and following period of membrane construction. Above photos taken March 15, 1949, a few hours after an 0.85 inch rain

Table I. Soil Moisture Determinations in Enveloped Soil

Made After 1 Year of Service

Structure	Approach	% Moisture During Construction	% Moisture July, 1948
Lombardy St. HB&T RR	East	27	27
	West	25	25
Calhoun Road HB&T RR	East	25	24
	West	20	19
St. Bernard St.	East	17	21
	West	19	20
Scott St.	East	15	18
	West	23	20
Velasco St. IGN RR	East	20	21
	West	17	16
Average, 10 fills		21	21

brane was within a very small percentage of the original moisture of compaction.

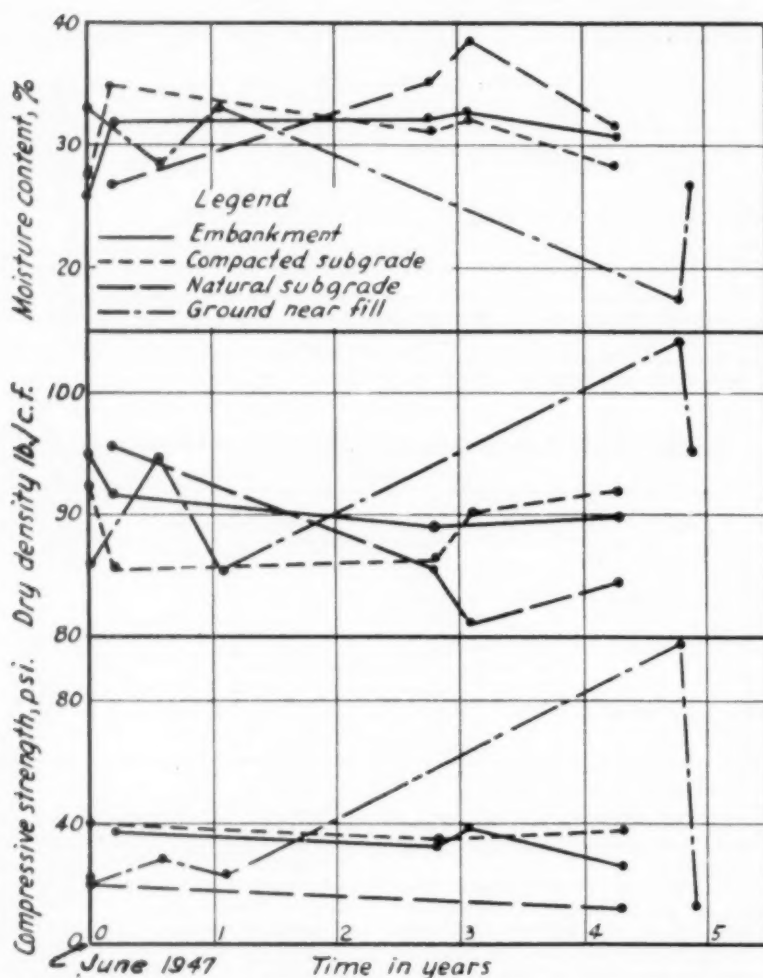
A continuous test program has been set up to determine the long-range behavior of the asphalt membrane enveloped fill sections. To this end, samples are taken at regular intervals and comparisons are made with previous data. The test data to date

consist of some 500 moisture tests, and 200 shear tests, all of which are in addition to the 250 moisture and density tests made during construction. A graphic analysis of portions of these test data are given in Figure 4. The areas included in these tests include (1) the embankment core (enveloped), (2) the compacted subgrade immediately under the lower mem-

Fig. 3. Moisture-Density Conditions in Earth Fill*Under Asphalt Membranes Covered with Minimum 6-Inch Sand-Shell*

Conditions and Dates	Approximate Stations	Per Cent Moisture	Dry Density in Per Cent of Proctor*	Per Cent Air Voids
West Approach—Wayside Drive Overpass				
Construction, June and July, 1948	175 to 177+50	16.1	104	8.5
Eight months after Construction, March, 1949	176+50	17.7	106	4.0
Difference		+1.6	+2	-4.5
East Approach—Wayside Drive Overpass				
Construction, April and May, 1948	184 to 185	16.9	105	5.5
Ten months after Construction, March, 1949	183 to 184+50	16.4	107	4.5
Difference		-0.5	+2	-1.0
West Approach—Brays Bayou Bridge				
Construction, April and May, 1948	194+50 to 195+25	15.6	104	8.8
Ten months after Construction, March, 1949	194 to 195+50	16.2	106	5.3
Difference		+0.6	+2	-3.5
Average of all three fills, immediately under membrane				
Construction, April through July, 1948		16.2	105	7.6
Eight to ten months after Construction, March, 1949		16.8	107	4.6
Difference		+0.6	+2	-3.0

* Maximum dry density in pounds per cubic foot by Standard Proctor Compaction Test, AASHTO Method T-99-38.



★ Figure 4. Average soil conditions, east fill of Gulf Freeway Structure No. 6 and vicinity

brane, (3) the natural, uncompacted subgrade underlying the compacted subgrade layer, and (4) the natural, uncompacted soil in level ground adjacent to the fill.

From the graph of Figure 4, the stabilizing effect of the membrane envelope is very evident. It is especially interesting to note, in this connection, that large moisture changes have occurred in soil at distances up to 40 ft. from the toe of the final slope. While these changes are less than those occurring in exposed soil adjacent to the fill, the data indicate conclusively that as much as 40 ft. of earth is not sufficient, in itself, to prevent large moisture changes in soil so covered. These data indicate conclusively the need for the lower or base membrane, as without this membrane, the moisture content of the fill core would be sure to change, defeating the purpose of the envelope.

Asphalt "Alive"

The durability of the asphaltic membranes and their retention of plasticity and "life" are matters of considerable importance with this type of construction, and data are being collected on these factors. All membranes outside the area directly under pavement are covered with not less than a two foot depth of soil. Tests to date have indicated that all membranes in this area are essentially as constructed, with the asphalt very plastic and "alive." Asphalt membrane directly in contact with sand-shell base course has been noted as having a layer of somewhat hardened surface about $\frac{1}{8}$ in. thick, the remainder ($\frac{1}{8}$ to $\frac{1}{4}$ in.) being plastic and alive. The dull surface is considered to be due to some reaction with the calcareous shell material (or to absorption of fine dust from the shell; Editor), but the reaction is not sufficiently deep to impair the performance of the membrane. All base membranes have been found to be unchanged from their original condition.

The ability of the asphalt membrane to withstand severe stresses induced by shrinkage of covering soil was well demonstrated late in the summer of 1952, when after a prolonged dry spell, numerous cracks formed in the side slopes, varying from a few inches in width, to one crack which opened up more than 12 in. This crack, which was 80 ft. long, developed along the crown line of an embankment. The crack extended completely through the 2-ft. thick cover over the membrane, exposing the membrane. However, in spite of the enormous stresses created in the membrane by this shrinkage, the membrane remained intact, as proven by a number of pits dug around the crack. The moisture content of the soil in the embankment immediately below the membrane remained at Proctor, while the moisture content

(Continued on page 110)

P&H

SINGLE PASS STABILIZERS

HERE'S THE WAY



to more miles
of all-weather

FARM-to-MARKET ROADS



America must have more *all-weather* farm-to-market roads. Surfaces that cost less to build, require less maintenance, stand up longer.

Today, the solution is at hand. Answered by the P&H Soil Stabilizer — the one machine that performs *all* stabilizing operations. Making maximum use of in-place soils and using any type of admixture, it reduces construction time and costs. Fewer men and equipment are required.

You can accurately determine load-carrying capacity *in advance*. The P&H Stabilizer processes with a rigid control of quality that

WHY NOT INVESTIGATE

what the P&H Stabilizer can do for you? See how it cuts time and costs in the building of base courses, roads, airports, etc., on soil-bituminous, soil-cement and clay-gravel. Ask for Bulletin S-8

assures surfaces of uniform strength — regardless of soil conditions, sandy loam to hard clay.

You can build more miles of roads per season because it performs *all* basic requirements for successful stabilization — in a *single pass*, with *one operator*, at a *rapid rate*! By making greater use of native soils, it reduces material-hauling costs. Today, with longer and longer traveling required for high-type aggregates, this is of great importance.

P&H SOIL STABILIZER DIVISION

HARNISCHFEGER CORPORATION

Milwaukee 46 Wisconsin



When writing advertisers please mention **ROADS AND STREETS**, April, 1953

When nature's against you...

that Pioneer Edge



C. R. PILCHER
GEN. SUPERINTENDENT
UNION CONSTRUCTION CO.

Paul Bunyan OF CRUSHERMEN

● Up in Montana, C. R. Pilcher and his Pioneer 46VE Plant are fast becoming a legend.

Take portability, for instance. Pilcher can move his plant to a new location, set up, and be in full production in 2 shifts ... if it's within 10 miles of the original site.

They tell how last year, when floods hit Montana, Pilcher and his plant were almost continually on the move. During the emergency they produced 20,000 tons of material from 7 different pits. Once they completed a move, set up, and were crushing within 11 hours.

They've set some fabulous non-stop production records, too. On a heavy crushing job at Polson, Montana, they lost only 1½ hours operating time on a 30,000 ton job with ¾" material at an average rate of 125 tph. On an 18,000 cubic yard job, they averaged 123 yards per hour on ¾" crushing and 156 yards on 1" minus. Fantastic? Not at all. Simply the case of a skilled operator who knows how to take advantage of Pioneer's extra capacity and extra stamina ... in other words, the PIONEER EDGE.

**BUY
BOTH!**

HIGHER OUTPUT
LOWER UPKEEP

Pioneer
Continuflow **EQUIPMENT**

is on your side

Pioneer plant overcomes obstacles on mountain job

IT'S rugged country up in the Bitterroot Mountain wilderness where Diamond Match Company decided to build its road. Short summers limit the construction season . . . mean bears make it hard to keep camp cooks . . . and rock is so hard and abrasive that even tungsten carbide bits often wear out in less than 80' of drilling, (they're usually good for 500' or more). It's he-man country and calls for "he-man" equipment.

That's why Union Construction Company, of Missoula brought in its PIONEER 46VE plant to produce the material needed for surfacing the new road Diamond Match had pushed from Superior, Montana, 20 miles up Trout Creek Canyon to the Idaho state line.

U.S. Forest Service specifications called for 15,000 tons of $\frac{3}{4}$ " minus, 32,000 tons of 1" minus, and 30,000 tons 1 $\frac{1}{2}$ " minus material. And extreme hardness wasn't the only problem; the rugged terrain called for unusual portability, and the short season demanded high crushing capacity with minimum down time.

But once again, the PIONEER EDGE paid off. With virtually 100% crushing, Union's plant turned out as much as 150 tph of $\frac{3}{4}$ " material, while a sub-contractor, Glenn Geery, of Missoula, also produced high tonnage with an older PIONEER plant.

The job was completed on time. Another triumph marked up for PIONEER equipment.



THE **Edge**
↓
THAT COUNTS

Few crushing plants will ever have to tackle an assignment as difficult as the one described above, which at the time of writing, had crushed well over 500,000 tons of material. But whether the job is tough or easy, the contractor who has the PIONEER EDGE on his side knows he can count on greater output with less upkeep . . . important items where the bidding is close.

PIONEER ENGINEERING WORKS, INC.

1515 Central Avenue • Minneapolis 13, Minnesota
(SUBSIDIARY OF POOR & COMPANY • CHICAGO)

• Please send me information on the equipment checked.

- | | | |
|--|--|--|
| <input type="checkbox"/> JAW CRUSHERS | <input type="checkbox"/> GRAVEL PLANTS | <input type="checkbox"/> APRON FEEDERS |
| <input type="checkbox"/> ROLL CRUSHERS | <input type="checkbox"/> WASHING PLANTS | <input type="checkbox"/> MECHANICAL FEEDERS |
| <input type="checkbox"/> ROCK PLANTS | <input type="checkbox"/> BITUMINOUS PLANTS | <input type="checkbox"/> VIBRATING SCREENS |
| <input type="checkbox"/> ORO FEEDERS | <input type="checkbox"/> BITUMINOUS PAVERS | <input type="checkbox"/> CONTINU-FLO CONVEYORS |

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



★ Construction engineer standing in embankment shrinkage crack

★ Looking into crack and test pit—membrane peeled back from embankment in lower left part of picture

★ W. J. Van London, Engineer-Manager, Gulf Freeway Project, inspecting embankment shoulder crack



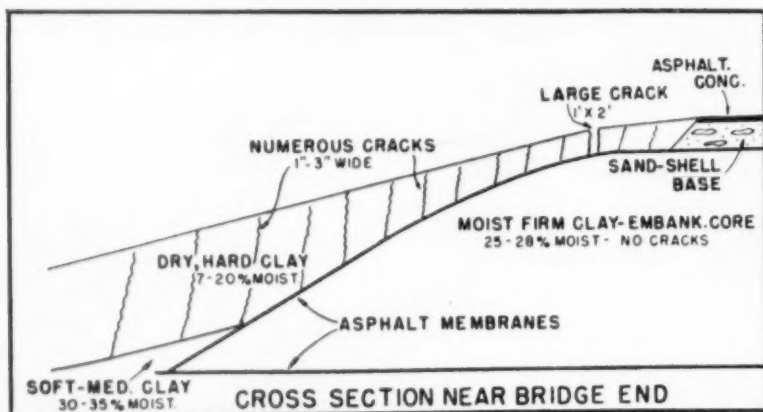
Van London, Engineer-Manager of Houston Urban Freeway. All tests, including those of the continuing test program, have been under the direction of Frederick A. Harris, Senior Designing Engineer, Houston Urban Freeway. The work was performed under the general direction of the Texas Highway Department, E. H. Thornton, Jr., chairman; D. C. Greer, state highway engineer.

Electrocution of worker near crane brings manslaughter verdict

Last January a laborer was electrocuted when a portable crane touched a 16,000-volt overhead power line on Highway 99. In August the operator of the crane was convicted of manslaughter, placed on probation for three years, and fined \$500.00.

The Division of Industrial Safety of the State of California has been ceaselessly conducting a campaign on the hazards of high-voltage lines, stressing the two points: That it is a violation of the law to place equipment within six feet of such lines; and that it is a violation of Safety Orders to place equipment within six feet of high-voltage lines.

(Excerpt from "California Safety News," published quarterly by the State of California Department of Industrial Relations. Readers are referred to article "Ground Your Cranes!" in Roads and Streets, March, 1953.—Editor.)



★ Figure 5. Shrinkage crack investigation, Structure 13

(Continued from page 106)

of the cover soil varied from 7 to 35 per cent. The cracks provided an excellent demonstration of the effectiveness and strength of the asphalt membrane.

Among the conclusions given by Mr. Van London were the following:

(1) Only minor variations in average moisture, density, and strength

have been observed in the embankment cores during the 5-year period.

(2) The favorable showing during the first five years of observations justifies the belief that the membrane will afford effective protection for many more years.

The use of asphaltic membranes for earth fill enveloping was developed and used under the direction of W. J.

" Euclid Scrapers



Getting big loads fast... and hauling them at speeds up to 29.5 m.p.h. ... the Euclid Scraper maintained high production for the T. & H. Construction Company.



The Euclid Twin Power Scraper spreads a 24 cu. yd. payload of heavy clay on the runway extension. Contractor is J. C. Critcher, Inc., Asheville, N. C.

Help Beat Schedule at

CHARLOTTE AIRPORT

At Morris Field in Charlotte, N. C., four Euclid Scrapers—two Twin Power and two 15.5 cu. yd. "Eucs"—moved 1200 bank yards per hour on round trip hauls averaging a half mile. Commenting on this outstanding performance, Mr. J. C. Critcher, president of the prime contractor company, said, "High production and low operating costs proved to us that Euclid Scrapers are the best on the market."

A total of six Euclid Scrapers helped complete this 1,400,000 cu. yd. job in half of the allotted

time. The T. & H. Construction Company used two 15.5 cu. yd. Euclid Scrapers to complete a section of the runway.

Euclid Scrapers have all the features required for low cost and high production—power and speed... fast, easy loading... large capacity... quick dumping... low operating and maintenance costs. Have your Euclid Distributor show you facts and figures on performance which prove that Euclids outperform all other scrapers of comparable size.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO



EUCLIDS



Move the Earth



Mc CARTER ASPHALT PLANTS



TRULY BALANCED PLANTS OF 2000 TO 6000 LB. MIXER CAP.

- McCarter . . . backed by 20 years experience . . . designs and manufactures this equipment in their own works, assuring standardized parts and minimum costs.
- McCarter standard plants are readily adaptable to your special requirements. Individual units are also available.

DRYERS (Hot or hot and cold material, center outlet type)

MIXERS, ASPHALT BUCKETS (Steam, hot oil or electric heated)

AGGREGATE HOPPERS, BINS, APRON TYPE FEEDERS, CYCLONE COLLECTORS, ELEVATORS, STEEL STRUCTURES

REPAIRS AND MODERNIZING
We specialize in remodeling old plants for better production and more efficient operation.

**Mc
Mc CARTER**

CALL FOR ONE OF OUR
ENGINEERS TO GO OVER
YOUR PROBLEMS WITH YOU

IRON WORKS, INC.

NORRISTOWN, PENNSYLVANIA

New personnel training program started by Texas Highway Department

By J. A. Waller

Chief Engineer, Construction and Maintenance
Texas Highway Department, Austin

As a result of the shortage of trained inspectors, instrumentmen, and draftsmen, the Texas Highway Department inaugurated a plan to train engineering personnel in this category. A training program, consisting of a series of schools, was held in Austin to train instructors, who after receiving training, returned to the various Districts to organize and teach classes within the District where on-the-job training could be accomplished. In all, four schools were held beginning the first part of September and extending into December, 1952.

The subjects taught at these schools were all types of asphalt, concrete, and earth work inspections, together with drafting, preparation of plans, etc. An average of approximately two well-qualified representatives from each of the twenty-five Districts and the Engineer-Managers' offices attended these schools and received instructions.

The instructors receiving the training were all well qualified to handle this work on their own, but the purpose of the schools was to outline to them the material that should be taught in the Districts and to get all instructors on the same basis with each having the same interpretations of the specifications and requirements. Reports coming in from the Districts are all favorable, and it is our firm belief that the schools are paying off and that as a result the personnel shortage will be eased and better and more uniform inspections and plan work will result.

In January of this year we held a school in Austin on signs, signals, and markings. Approximately two employees from each District attended this school. These employees were men charged by each District Engineer with the responsibility of the construction and maintenance of the signs, signals, and markings in each District. The purpose of the school was to familiarize personnel with the various changes that have been made in signing and to stress the importance of uniformity and maintenance of our Texas Highway Department signs and markings.

"First Aid Kit" for your construction men

"Unit First Aid Kits," a new National Safety Council data sheet, provides a useful guide to better first aid for companies with scattered operations.

Crews on mobile equipment or groups working in isolated areas benefit from these unit kits with treatment and dressings packaged for one-time use. With no half-empty bottles and half-used rolls of gauze, the kits remain sanitary during periods of infrequent use.

The kits come in four sizes. As a rule, one 24-unit kit should be used for each 50 employees. Ten and 16-unit kits are satisfactory for smaller groups.

The kits can be tailor-made to each job as there are more than one hundred basic items to choose from. For instance, oil well workers will want snake bite kits and linemen will have use for poison ivy ointment. There are burn spray kits for larger body burns of the kind which occasionally occur on steam-powered drilling rigs and certain pipe line operations in remote areas where more approved types of medical treatment are not possible.

To assist companies in the selection of units for the first aid kits, the Council's data sheet includes a chart giving recommendations for some 25 occupations. The data sheet contains a simplified accident and first aid report form as well as valuable information on first aid training and inspection and control.

Copies of "Unit First Aid Kits," data sheet D-202, are priced at 17 cents each; quantity prices less. Write the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Minnesota Improves its Sealing Methods

Notes from a departmental report by G. A. McPherson, Bituminous Engineer, Division of Materials and Research, analyzing experience in bituminous work accomplished in the Minnesota Department of Highways 1952 program

BITUMINOUS road construction in 1952 on Minnesota state and federal-aid secondary projects included a variety of bituminous types, as shown in the accompanying table. A total of some 22,600,000 gallons of liquid bituminous materials and 58,000 tons of asphaltic cement and heavy road oils were used in the work listed.

Seal coating has assumed a position of increased importance in the Minnesota program. During the 1952 season over 1,623 miles of sealing was done on construction projects or by maintenance forces, including federal aid secondary projects.

During the 1952 construction season specifications were revised to re-

quire the addition of one percent of an approved anti-stripping additive and an increase in rolling required on our light bituminous seals with sand cover. The use of both types of rollers (pneumatic and steel-wheel) and two complete coverages with each type, were required. An improvement in appearance and retention of aggregate was noted on the 1952 year's work compared with the previous year.

In placing heavier seal coats with buckshot or chip cover, the use of additive, increased rolling and tightening up of the specifications covering the sequence of operations, resulted in better seals on the limited amount of this type constructed. The heavier grades of RC and RCS and some penetration asphalt were used. Experience with this type of seal coat in 1952 indicates that the maximum application of bituminous material is approximately 0.18 gallon with approximately 21 pounds of chips or buckshot per square yard. Application rates in excess of 0.18 gallon per square yard have resulted in bleeding of the bituminous material through the cover aggregate, and could result in a slippery condition. It must be borne in mind that these heavier seal coats discussed here were placed on our more heavily traveled trunks. It would seem that if this type of seal were placed on light traveled roads, the application rates of the bituminous material might be increased.

Double Seals

Several hot-plant-mix surfacing projects placed during the year were sealed using a double application of bituminous material and cover aggregate. This so-called "Double Seal" apparently has earned a place in the state's program, as a means of preserving and maintaining bituminous surfaces in urban sections of highway where traffic and snow removal conditions are severe.

Original specifications drawn up for this type of work were of an experimental nature. As a result of rather close observation during the past year, the following changes in the specifications are considered to be in order:

(1) Reduction of the application rates of bituminous materials to 0.15 to 0.18 gallon per square yard on the first application, with 0.16 gallon per square yard seeming to be the best rate based on the double seal projects built during the past year.

(2) Elimination of the provision for keeping traffic off the first application until after the second application is made and rolled. It was found to be desirable to extend the curing period on the first application as long as possible, preferably a week to ten

1952 Bituminous Work Under Minnesota Department

Type of Construction	By Construction Division	By Maintenance Division	State Forces	F.A.S. By Counties	Totals
(Spec. 2351)					
Hot Asphaltic Concrete	4				4
(Spec. 2341)					
Hot Plant-Mix Surface	202				202
(Spec. 2331)					
Hot Plant-Mix Surface	456	14		59	529
(Spec. 2321)					
Road-Mixed Surface	292	267	630	226	1415
(Specs. 2207 & 2208)					
Mixed Prime and Bituminous Stabilized Base	140	9	61	50	260
(Spec. 2357)					
Light Seal with Cover	625	487	414	12	1538
(Spec. 2356)					
Heavy Seal with Cover	14	14		24	52
(Spec. 2356 Mod.)					
Heavy Double Seal with Cover	10	23			33
Fog Seal without Cover	279	49	64	165	557

Double Seal Coat Jobs in 1952 Minnesota Program

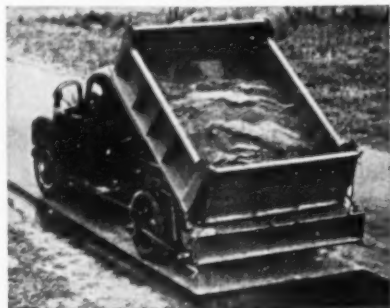
State Project	T.H. No.	Length (Miles)	Location	Bituminous Material		Cover Aggregate*	
				Type & Grade	Gals. Sq. Yd.	Spec. No.	Lbs. Sq. Yd.
0407-4	2 33	0.40	In Bemidji	RT-10	.189	FA2C	19.3
					.180	FA1M	17.3
0905-12 Etc. 61-210	1.04	In Cloquet & Jct. 33 & 61	RC-4	.177	FA2C	20.3	
				.100	FA-M	12.6	
0907-18	45	In Cloquet	RC-4	.169	FA2C	20.1	
				.126	FA1M	16.3	
1803-05	18	In Brainerd	RC-4	.174	FA2C	19.4	
				.142	FA1M	12.6	
5001-15 Etc. 16	2.50	In Austin	RC-3	.210	FA2C	23.0	
				.120	FA1M	14.9	
5008-09 Etc. 218	0.95	In Austin	RC-3	.229	FA2C	24.2	
				.123	FA1M	10.6	
8101-09	13	In Waseca	RC-3	.180	FA2A	22.0	
				.155	FA1M	20.7	
8407-08 3 & 75	2.04	In Breckenridge	RC-4	.187	FA2C	21.7	
				.141	FA1M	15.6	
0502	10	Sauk Rapids—No. Co. Line	RCS-4	.163	FA2A	20.3	
				.109	FA1M	16.6	
6925-6933	61	Superior St., Duluth	RCS-3	.182	FA2C	28.3	
				.161	FA1M	21.8	
0502-16	10	In Sauk Rapids	RC-3	.145	FA2A	20.8	
				.099	FA1M	13.1	

*FA2 consists of material 100% passing 1/2", 90-100% passing 3/8", 10-40% passing No. 4, 0-5% passing No. 10. FA2C is gravel. FA2A is crushed rock. FA1M is sand.

Do your sealcoating
and ice control jobs
the fast easy Swenson way.
Spreads salt, chloride, sand,
rock chips, gravel or cinders any
width or amount desired.

Free Information

Swenson Spreader & Mfg. Co.
Lindenwood, Illinois



Slow curing oil used on several hot mix jobs in Minnesota

In Minnesota's extensive bituminous program last year, asphalt cements were used in practically all cases for hot plant mixtures. These ranged from the harder asphalts (60-70 penetration) used in asphaltic concrete mixes to the softer asphalts (200-300 penetration) used in single aggregate type mixes. However, on seven hot plant mixed projects, SC-5 slow curing oil was used. On one of these projects a high degree of flexibility was desired and the traffic counts were relatively low.

Experience with the slow curing oils in the past has been that mixtures of this type had less tendency to brittleness in cold weather. A higher density may be obtained by the action of traffic after initial compaction by the conventional construction equipment due to the more pliable nature of the mixture. For these advantages some sacrifice is made in stability. The SC-5 mixes appear to stay "alive" longer which is of a definite advantage on roads which do not have a high traffic count.

The above statements were taken from a departmental summary of 1952 construction results prepared by the Division of Materials and Re-

days, and permit traffic to use the sealed surface during that period.

(3) Reduction of the application rates of bituminous material on the second application to within the range of 0.10 to 0.12 gallon per square yard.

(4) Rolling specifications as previously required consisting of rolling with both types of rollers (pneumatic and steel-wheel) are considered adequate, and observance of more rigid time intervals between application of aggregate and completion of rolling is deemed desirable.

A short recapitulation of the double seals placed during 1952 is listed in the accompanying table.

Experience with this type of seal coat to date has indicated that a total application rate in excess of 0.30 gal. per sq. yd. with the aggregate used will result in "bleeding." This bleeding is not too serious on urban sections where sand can be readily spread and the traffic slowed down to the point where "whip-off" of the sand is not too rapid. The double seals will be watched closely to determine their performance over the next few years.

Frost Promoted by Hewitt-Robins. C. Lynn Frost, heretofore assistant A.M., has been appointed advertising manager of Hewitt-Robins, Inc., Stamford, Conn.



LITTLEFORD

"Spray-Master"

BITUMINOUS DISTRIBUTOR

Gives Low Cost • Mix in Place • Seal Coat Jobs



Here's the Bituminous Spraying unit that will handle Asphalt, Tar, Emulsions, Cut-Back and Road Oils for any road maintenance or construction work. It's engineered to operate with the minimum of cost and designed to eliminate valves, pipe lines and controls, making it simple to operate.

Spray Bars operate up to 24 ft. in width, both the Standard Suck-Back Bar or the Full Circulating Vacuum Flow Bar give 100% efficient spraying action.

Littleford "Spray-Master" Bituminous Distributors are the most modern units on the market today. Made in either truck mounted or semi-trailer models. Sizes range from 800 to 4000 gallons.

"Spray-Master" Distributors are fast heating, safe, efficient, low-cost in operation. See your nearest Littleford Dealer or write.



LITTLEFORD BROS., INC., 454 EAST PEARL STREET, CINCINNATI 2, OHIO

search of the Minnesota Department of Highways, under John H. Swanberg. This report also notes that in late Autumn work in 1952, as in previous years, difficulties were experienced in obtaining the specified densities on hot plant mix jobs. The projects where densities were in question were sealed. "It is felt," states the report, "that the seal coats will adequately protect the mat until the following summer when additional density will be imparted by the effect of traffic during warm weather."

Additional density samples are to be taken from these projects after a year's service, to determine the increase obtained in density.

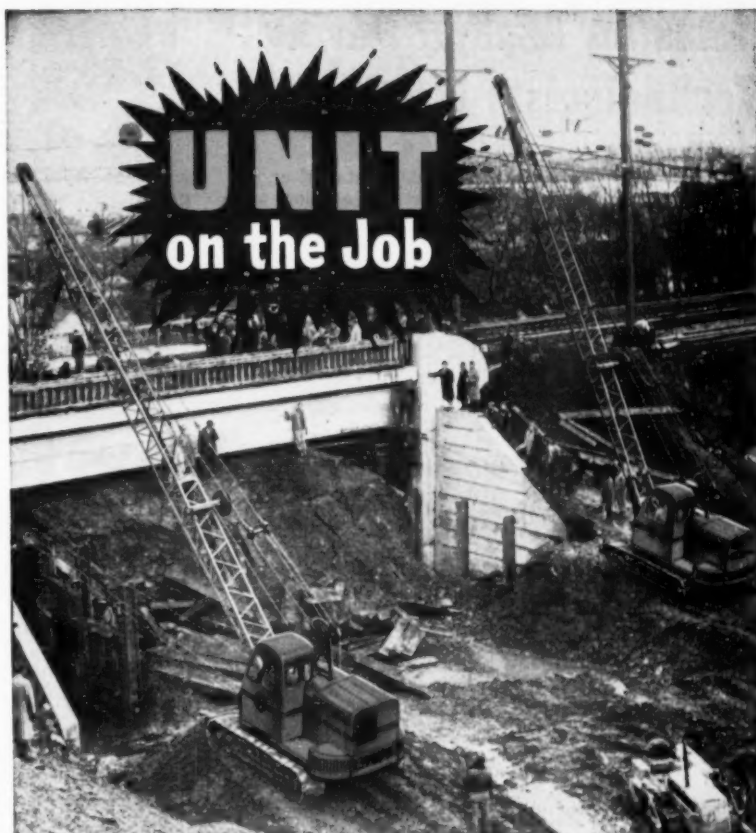
Minnesota materials engineers, after several years of close observation and contact with both laboratory design and field practice, in the placement of bituminous plant-mix surfaces, find confirmation in their belief in the importance of good densities. Durability and stability are found to be directly related to the density obtained, stated this report.

During the Minnesota state road program in 1952, a total of 27 hot-mix plants furnished bituminous mixture on trunk highway and county F.A.S. projects in the amount of about 1,250,000 tons. Of these plants, two were of the permanent stationary type in the Twin Cities area and Duluth, which accounted for 10,000 tons. Three were smaller than normal plants, less than 70 tons per hour, which produced 48,000 tons. The remaining 1,192,000 tons were mixed in the 22 normal size plants, or an average of approximately 55,000 tons per plant. One such plant produced 117,000 tons in 104 working days. Other plants appreciably exceeded the average figure of 55,000 tons for the season.

1953 schedule for Washo road test announced

Testing on the Washo test road in Idaho this year will be in two principle phases, according to a decision by the Highway Research Board's project committee. The first phase, starting in April, will consist of studies of deflections in the pavement under various axle loads and axle load combinations. These deflection studies will be repeated on about May first, and again later in May. At the conclusion of the third series of deflection tests, regular two-shift operations with the full test loads will be resumed.

The regular test traffic, which consists of 18,000 and 22,400 lb. single axle loads on one test loop, and 32,000 and 40,000 lb. tandem axle loads on another, will operate about 18 hours per day, 6 days per week through the summer and on into the fall, until such time as the pavement structure is frozen. Although no definite action was taken at the recent meeting, it is planned to operate the test traffic through the critical spring period in 1954.



TEAMWORK and Accurate Control

Working as a team, these two UNIT 1020 Cranes moved a 500 TON railroad bridge from its temporary mounting to the new structure in a period of thirteen (13) minutes. This type of job calls for smooth and accurate control of boom and hoist line operation. UNIT'S extra long crawlers, multiple-hinged shoes, wide axles, and hook rollers provide perfect balance and stability. This, together with the FULL VISION CAB for complete visibility, makes UNIT the machine that is dependable and safe to handle efficiently any type of heavy-duty work.

SEE FOR YOURSELF: Let us send you our novel TV Brochure. It illustrates the complete UNIT line.

UNIT CRANE & SHOVEL CORPORATION

6407 WEST BURNHAM STREET

MILWAUKEE 14, WISCONSIN, U. S. A.



**1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL**



All Models Convertible to ALL Attachments!

Notes on Asphalt Paving Technologists Meeting

FOLLOWING are notes on technical papers given at the Association of Asphalt Paving Technologists annual meeting, January 26-28 at Houston, Texas.

"Storage of Bituminous Materials in Laboratories"; by Ladis H. Cesanyi, Professor of Civil Engineering, Iowa State College, Ames. This paper described methods and equipment in-

stalled at the College laboratory for handling, transferring and storage of bituminous materials at desired temperatures, so that they are readily available for instruction and research work.

Thermostatically controlled electrical heating was used to maintain materials at proper temperature. The author explained that such storage

speeded up laboratory work, since it is not necessary for students to spend considerable time preparing asphalt for the intended use.

Catalytic Asphalts

"Some Effects Noted on 50-60 Penetration Asphalt Cements Due to Aging—an Interim Report"; by John M. Shaw, U. S. Bureau of Reclamation, Denver, Colo. The author concerned himself with changes found in asphalt cement of the catalytically blown type used for canal lining when these materials were at 145 deg. F. for 14 days. Comparisons were shown between such properties relative to the effect of the different types of catalysts and straight air-blown material.

"Field Measurements of Air Voids in Dense Graded Bituminous Paving Mats"; by Martin Ekse, Assistant Professor of Civil Engineering, University of Washington, Seattle. This paper describes a new type of testing device to measure the permeability of a compacted bituminous mix to low pressure air. The time of the reaction of air pressure in the apparatus from 4 psi. to $\frac{1}{2}$ psi. was correlated with the calculated porosity of both sheet asphalt and dense graded bituminous mixture. The possibility of establishing the air permeability characteristics of a compacted mixture by laboratory tests, and of using such values to determine in the field the effectiveness of compaction, was presented.

"Possible Uses of Asphalt Membranes"; by J. R. Benson, Special Projects Engineer, Asphalt Institute, Denver, Colo. This paper reviewed proposed methods of enveloping soil bases with a moisture resistant membrane in order to control moisture content. (This paper conforms closely with an article on the subject published in *Roads and Streets*, December, 1952.)

A discussion of this paper by W. J. Van London, Engineer-Manager, Houston Urban Freeways, telling of a pioneer application of the asphalt membrane method, is summarized elsewhere in this issue of *Roads and Streets*.

"Evaluation of Sandstone as an Aggregate in Plant-Mix Bituminous Pavements"; by Ellis G. Williams and L. E. Gregg, Kentucky Department of Highways. How Kentucky has used these highly absorptive, low abrasion resistance materials economically.

Hot-Mix Plants

A feature of the Houston meeting was a symposium, entitled **"Hot-Mix Asphalt Plant Equipment."** Panel speakers included J. R. Harris, Texas Highway Department; Tom Humphries, Michigan State Highway Department; F. W. Kimble, Ohio Department of Highways; and L. H. Cesanyi, Iowa State College.

The speakers described policies of their states with respect to plant requirements and operation, Prof. Ce-

Resurfacing A Major Highway without closing it to traffic



with the H & B MOTO-PAVER



While designed primarily for resurfacing work on secondary roads and city streets, the *Moto-Paver* here demonstrates its efficiency in resurfacing a major highway. Traffic was maintained on this highway—one of the busiest in the East—while the work was being done. The lower picture shows aggregate being dumped into the *Moto-Paver* hopper on the job.

The *Moto-Paver* does the complete mixing and laying job—in one continuous operation, using beach sand, gravel, crushed stone or slag aggregates, and tars, cutback asphalts, road oils, emulsions or other bituminous materials. Road speeds up to 25 mph make possible quick moves from job to job. For specifications and complete information see your local H & B distributor or write for Bulletin MP-43.

HETHERINGTON & BERNER INC. • Engineers—Manufacturers
721 Kentucky Avenue Indianapolis 7, Indiana

sanyi telling of city-type plants such as those found in the East. A considerable difference in policy with respect to types of plants permitted, was revealed to still exist between the different states represented.

"A Comparison of the Asphalt Content Determined by the Marshall Test Method with that Obtained by the Omaha Testing Laboratories Method"; by W. H. Campen of Omaha Testing Laboratories. Stability and bearing index values obtained by the two methods were compared for a number of types of bituminous mixtures.

"Bituminous Resurfacing on Super-elevated Curves on Automotive Test Track"; by L. C. Lundstrom, General Motors Proving Grounds, Milford, Mich. The author described problems in connection with this unusual pavement resurfacing job, in which equipment had to be suspended from cables to perform finishing and rolling, due to the steeply dished turns.

"A Study of Vibration Phenomena in Asphalt Road Construction"; by Dr. L. W. Nijbeer and C. Van der Poel, Royal Dutch Shell Laboratories, Amsterdam, Holland. This paper dealt with dynamic testing of road surfaces, recognizing that moving traffic sets off vibrations. Several methods of studying deformations under alternating dynamic loads were discussed. Information was obtained by which the mechanical rigidity of a road can be measured without destructive testing.

"Design of Bituminous Mixtures with Curved Mohr Envelopes"; by Dr. N. W. McLeod, Engineer Consultant, Department of Transport, Ottawa, Canada. This was a continuation of studies presented at the last meeting on stability design of bituminous mixtures and the effects of different factors related to the triaxial values when applied to the Mohr diagram.

"Volumetric Methods of Measuring Asphalt Content and Effective Gravity of Aggregates in Bituminous Mixtures"; by J. M. Rice, National Crushed Stone Association, Washington, D. C. Continuing work is described in research using the air pressure method of determining the voids in compacted bituminous concrete. Information was given on the use of this method in obtaining the asphalt content of the mix and the effective specific gravity of the aggregate in compacted bituminous mixtures.

"A Possible New Approach to Develop a Mohr Diagram"; by Ing. Hector M. Calderon, Jefe de la Seccion de Estudios Especiales, Departamento de Investigaciones Tecnicas y Laboratorios, Comunicaciones y Obras Publicas, Mexico, D. F. By this procedure it is only necessary to determine the unconfined compressive strength for the Mohr circle tangent to the origin. A second Mohr circle of shear stress alone is then drawn with the origin at its center. The shear stress is determined by using a cubical box hinged

For Hot or Cold Patching Mixtures... In Any Season



MODEL HTD-B

McConnaughay MULTI-PUG ASPHALT MIXER

Here's exactly what you need for quick, economical pavement repairs and small surfacing jobs... in any season... under wet or dry conditions. It's the McConnaughay HTD-B Mixer, precisely engineered and rigidly constructed to handle on-the-job mixtures of asphaltic concrete, sheet asphalt, sand asphalt or mastic asphalt... hot or cold... at remarkably high rates. It will enable you to meet all conditions with least effort and at lowest possible costs the year 'round. Write, wire or 'phone today for details and specifications.

**No Other Machine Can Do
ALL These Things!**

Reactivate and heat stock pile mixture—up to 10 tons per hour.

Prepare cold asphaltic mixtures—up to 10 tons per hour.

Prepare hot asphaltic mixtures—up to 5 tons per hour.

Dry various types of wet aggregates quickly, thoroughly.

Remove both moisture and solvents from bituminous mixtures.

Produce bituminous mixtures with tars, paving asphalts, cut-back asphalts, and emulsified asphalts.



K. E. MCCONNAUGHAY

LAFAYETTE 2, INDIANA

at the four corners. The Mohr envelope is obtained by the common tangent to the shear circle and the unconfined compressive strength circle.

The author explained that the procedure has been used on soil determination for several years in his organization. He gave supporting data comparing Mohr envelopes on several bituminous materials obtained by the procedure, as compared with the standard triaxial procedure.

"A Preliminary Study and Proposed Method of Measuring Lateral Pressures"; by W. L. Shearer, Civil Aeronautics Administration Technical Development and Evaluation Center, Indianapolis, Ind. Describes preliminary

studies to determine lateral pressures developed under loads in soils.

"Comparative Methods of Evaluating the Structural Properties of Base Courses for Flexible Paving"; by W. M. Aldous, CAA, Indianapolis. A continuation of earlier papers by Mr. Aldous, this described the triaxial and double shear testing devices, comparing results using materials ranging from Ottawa sand to silty clay soils.

Dr. N. W. McLeod of Canada was given the Association's annual award for the best paper presented at its 1952 meeting. His paper was entitled, "Triaxial Design of Bituminous Mixtures with Curved Mohr Envelopes."

PUZZLE

SOLUTION



BASE PAVERS



PAVER FINISHERS



In today's construction game, where specifications are usually tough and dollars need to be stretched, Apsco equipment can be your best friend. If the job calls for road widening, trench rolling, base paving or bituminous paving, you'll do well to get the facts on Apsco.

**HOW TO GET THAT
ROAD CONTRACT
AND STILL MAKE
A DECENT PROFIT**

USE

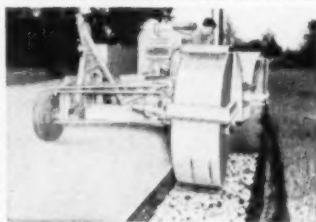


**ROAD WIDENERS • BASE
PAVERS • TRENCH ROLLERS
BITUMINOUS PAVER
FINISHERS**

ROAD WIDENERS



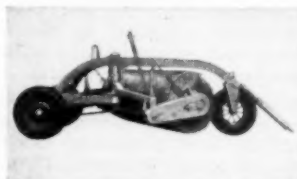
TRENCH ROLLERS



Available through reputable equipment distributors across the land. Write us for the name of the one nearest you.

ALL PURPOSE SPREADER COMPANY • ELYRIA, OHIO

GRACE Asphalt and Compaction Equipment



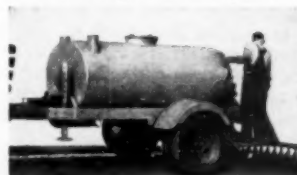
3 sweeper models, axle, engine or tractor powered.



Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.



Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Sheepsfoot Rollers
250 to 600 psi.



Pneumatic rollers
7 to 50 tons.

W. E. GRACE MFG. CO.

6007 S. Lamar

Dallas, Texas

Bridge Painting

By Albert Woodruff Gray

A firm of painting contractors in Salt Lake City, Utah, was asked along with two other painting firms, to submit bids for painting a Green River Bridge, included in a Utah State Road Commission project. This was in the performance of a contract awarded to a subcontractor "to unload, deliver to site, erect and paint all the structural steel in this job."

The three firms submitted their bids, that of this Salt Lake City firm for \$500 providing the paint was furnished by the subcontractor and an additional \$100 if the bid included the paint. The other two bids were \$2,000 and \$3,277 respectively.

The contract subsequently signed by the Salt Lake City firm contained the clause, "In the event the work to be done by the painting contractor fails to comply with the said plans and specifications or is not done in a prompt, expeditious and good workmanlike manner, thus requiring additional expenditures of labor or causing delays to the first party or the general contractor, then the undersigned painting contractor shall promptly reimburse the first party for all expenditures of time and labor occasioned thereby; and in the event of any such failure on the part of the undersigned painting contractor, it is agreed that they shall pay all costs, including a reasonable attorney's fee for collection thereof."

Six months later when no work whatever had been done under the contract the painting firm refused to proceed, claiming the size of the bridge had been misrepresented to them and that the disparity between their bid and the other two bids for this contract showed their bid to have been based on a mistake.

In its decision of the action brought by the subcontractor for reimbursement under this contract clause, the court said, "The size, nature, weight and physical characteristics of the bridge appear on the plans and the total weight was estimated in pounds. This latter item appeared on the first page of the drawings. They were given ample time in which to carefully consider their contract price and to make any further inquiry or investigation desired by them."

Refusing to grant relief to this paint contracting firm from the mistake it claimed had been made, and awarding the subcontractor the amount paid for performance of the contract in excess of this bid, the Supreme Court of Utah said in its decision a few months ago,

"Equitable relief from a mutual

mistake is frequently given by a reformation of the contract. But a contract will not be reformed for a unilateral mistake. Equitable relief may however be given from a unilateral mistake by a rescission of the contract.

"Essential conditions to such relief are (1) the mistake must be so grave a consequence that to enforce the contract as actually made would be unconscionable, (2) the matter as to which the mistake was made must relate to a material feature of the contract, (3) generally the mistake must have occurred notwithstanding the exercise of ordinary diligence by

the party making the mistake and (4) it must be possible to give relief by way of rescission without serious prejudice to the other party except the loss of his bargain."

Ashworth v. Charlesworth, 231 Pac. 2d 724, Utah.

Lehman Leaves Euclid, A. W. ("Army") Lehman, advertising manager of The Euclid Road Machinery Co. of Cleveland, O., for the past 12 years, has left Euclid to become vice-president of Richard T. Brandt, Inc., recently appointed to handle the Euclid advertising account. The Brandt agency which specializes in industrial advertising, is located at 1408 Keith Bldg., in Cleveland.

STANDARD STEEL PRESSURE DISTRIBUTOR



**FULL CIRCULATING SPRAY BAR
GIVES UNIFORM SPREAD OF MATERIAL
THROUGHOUT LENGTH OF BAR...**

**SIMPLIFIED PIPING PERMITS
FAST LOADING AND LAYING...**

✓ 25% More Asphalt shot per day! Faster loading! No delays Starting! Instant cleaning at end of run! These are facts known to every operator of **Standard Steel Pressure Distributors**! Why? Because of the simplified piping in this equipment! The full circulating spray bar contains submerged valves which are quickly heated and remain uniformly hot at each point of pouring. The throw of a single lever opens and closes all valves instantly. Every inch of the spray bar delivers precisely the same material output—lightest or heaviest bituminous material. And there are 12 other special features that make this equipment outstanding in performance. Write for catalog 424 today for complete details.

OTHER PRODUCTS

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.



PD 3

Standard Steel Works, NORTH KANSAS CITY, MO.

"MEALORUB"

CRUDE NATURAL RUBBER IN CRUMBS

The only natural rubber powder that has proven its value in asphalt roads
in use for about fifteen years.

AVAILABLE FOR IMMEDIATE DELIVERY

For further information apply

JACOBUS F. FRANK

120 Wall Street

New York 5, N. Y.

Representative for Indonesian Government Estates.

Traffic Accidents on Pennsylvania Turnpike System

By Calendar Years, October 1, 1940, to December 31, 1952

Year	Fatal Accidents	Fatalities	Injury Accidents	Injuries	Total Accidents	Vehicles Using	Miles Driven	Injuries per 100 Million Vehicle Miles	Fatalities per 100 Thousand Vehicle Miles
1940	5	5	47	101	138	560,000	46,700,000	9.4	.216
1941	20	26	198	402	529	2,630,000	242,200,000	10.7	.166
1942	12	14	100	180	298	1,520,000	128,500,000	10.9	.140
1943	7	7	53	106	212	1,000,000	87,300,000	8.0	.121
1944	12	14	77	153	232	1,140,000	96,900,000	14.4	.158
1945	12	16	86	158	238	1,600,000	142,800,000	11.2	.111
1946	14	24	124	233	331	2,600,000	244,600,000	9.8	.095
1947	13	17	139	269	399	3,100,000	292,318,261	5.8	.092
1948	21	25	195	402	535	3,563,845	343,345,471	7.3	.117
1949	28	39	227	456	609	4,051,442	390,952,582	10.0	.117
1950	42	59	338	624	949	4,774,389	475,939,605	12.4	.131
1951	47	66	502	975	1,409	7,777,508	774,215,981	8.5	.126
1952	62	83	623	1,177	1,832	11,372,117	1,141,782,280	7.3	.103

There are no tough cleaning jobs with the AUTO-STEAM CLEANER

Ready for action—100
lbs. steam pressure in 90
seconds.

Fully automatic—just
flip a switch.

Trouble-free operation
—no chemical goes
through heating coil.

No pre-mixing of com-
pound—set the mix valve
and the machine does
the rest.

High efficiency down-
draft burner with safety
controls.

Low water cut-off—pre-
vents coil burn-outs.



Capacities 120
and 150 G.P.H.

Aeroil

Save time and labor with this un-
equalled cleaning unit, quality-built
by the foremost manufacturer of
industrial heating equipment.

AEROIL PRODUCTS COMPANY, INC.
50 WESLEY ST., SOUTH HACKENSACK, N. J.

Please send Literature on the Aeroil AUTO-STEAM Cleaner to:

NAME

ADDRESS

CITY

ZONE

STATE

Lower accident rate on Penn turnpike

A 12-year summary of accident experience on the Penn-
sylvania Turnpike System has been compiled by the turn-
pike commission. Compiled in accordance with the re-
quirements of the National Safety Council, the figures
are given in the table above.

The summary includes all accidents, traffic and non-
traffic, occurring within the limits of the (now) 327-mile
System. It includes, too, those accidents showing a lesser
amount of property damage than are required to be re-
ported to the Pennsylvania Department of Revenue,
Bureau of Highway Safety.

The vehicles and vehicular mileage as shown on the
reports are actual, computed from transit tickets, con-
sidering the origin and destination for each and every
vehicle using the Turnpike System, and is an exact figure
rather than one estimated on gasoline consumption or
other data.

It is significant, notes a Commission statement, that
percentage-wise the 1952 experience shows the second
lowest record of fatalities since the Turnpike was opened
in 1940. The 1952 percentage of injury accidents was the
lowest since 1947.

New York parkway to be toll road

Governor Dewey early in March signed a bill which
provides for a \$40 million bond issue to reconstruct the
Southern State Parkway on Long Island, with bonds to
be retired by proceeds of a 10-cent toll charge. Authority
over the parkway is transferred from the Long Island
State Park Commission, which operates the state parks
in Nassau and Suffolk counties, to the independent Jones
Beach State Parkway Authority.

A higher toll than the immediately planned 10 cents is
provided should the proceeds not be sufficient for bond
retirement. The toll will be paid chiefly by New York City
residents on recreational trips. The present four-lane
route would be reconstructed to provide more modern
facilities, including a six-lane roadway part of the distance.

Manufacturers' Literature

Use the post card insert. Just circle numbers of items on which you want more information.

51

Jaw crushers and single pass gravel plants

Two new equipment bulletins have been released by Diamond Iron Works, Inc., 1740 North Second St., Minneapolis, Minn. Bulletin No. 600 gives six pages of facts and specifications on the 11 sizes of Diamond jaw crushers. The bulletin contains cut-away views of the jaw crushers and several useful charts. Included in the charts is: Capacity table in tons per hour of the 11 Diamond crushers; toughness of various kinds of rock; and a percentage chart that tells the percentage of stone crushed and retained at any crusher setting.

Bulletin No. 1000 gives specifications on the new 100 Series of three portable single pass gravel plants. The bulletin also highlights the plants' outstanding features and illustrates Model No. 124 portable crushing plant.

52

Diesel engine torque converter unit

The inside story of the General Motors torque converter, now an integral part of a number of GM Diesel engine models, has been published by the Detroit Diesel Engine Division, 13400 W. Outer Drive, Detroit 28, Mich. The folder is well illustrated with cutaway drawings, curves showing the horsepower characteristics of engines so equipped and photos of torque converter units at work in typical installations in the construction, industrial, logging and petroleum fields. Fully explained are the operating principles of the unit which provides smoother power flow and protects engine, transmission and driven equipment from damage which often occurs as a result of sudden load changes.

53

How to get copies of original records

How to get extra copies of original records and to obtain greater use of microfilm records is described in a new folder "continuous microfilm enlargement service," released by Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y. Accurate reproductions produced at high speed at tremendous savings are available with this new service which allows a convenient means to restore any or all of a microfilm file. In the present business situation microfilm is being increasingly used. Entire duplicate files can be made up on microfilm and paper copies produced when required.

54

Holds pull-type implements at predetermined depth

New literature, available from Earth Equipment Corp., 2036 Sacramento St., Los Angeles 21, Calif., illustrates what the Equalizer does and how it works. The Equalizer is a tractor accessory for holding pull-type implements at a predetermined depth. It is easy to install and simple to work. Once set for any implement depth the tractor can be operated without fear of having the implement bob up and down because of changing soil conditions.



*It likes
the Big Pikes...*

On the punishing turnpike jobs, original equipment producers know their products will move inches, feet, yards or miles . . . thanks to a Shunk blade.

On a big, tough grader, 'dozer or scraper, the Shunk blade really likes the big pikes.

Highway construction and maintenance contractors look to a Shunk blade for endurance and long wear. They specify a Shunk for its superior quality.

Distributors everywhere know that their recommendation of a Shunk blade for turnpike jobs will be backed by Shunk service and reliability.

Put this rugged work horse to work on your next pike job. More information will be gladly provided.

3000 DIFFERENT SPECIFICATIONS



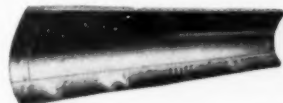
Shunk MANUFACTURING COMPANY
In Our 99th Year

BEST BLADES MADE

BUYRUS, OHIO



GRADER BLADES



MOLD BOARDS



SCARIFYING BLADES

WRITE FOR OUR NEW CATALOG

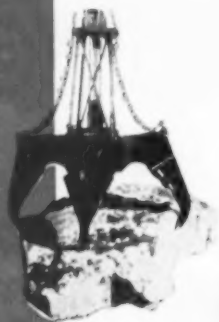
OWEN

THE

GRAPPLE

WITH THE

GRIP *for* GREATER GRABS



To grab and to hold safely is the function of a grapple.

The Owen Grapple alone has independently acting tines each of which contacts the object to be lifted, regardless of its shape, and grips it with heretofore unknown tenacity. These photos tell the story.

The Owen Grapple opens wide to grasp large objects. Fast, safe operation is assured indefinitely because of the tremendous grip, scientific design and the use of the best materials available.

THE OWEN BUCKET CO.

6070 BREAKWATER AVE., CLEVELAND, OHIO

Branches: New York • Philadelphia • Chicago • Berkeley, Calif. • Fort Lauderdale, Fla.

55

Heaters for asphalt plants, batch plants and tank cars

Two new models of Hi-Way hot oil heaters are illustrated and described in a 4-page catalog issued by Hi-Way Machinery, Inc., 3697 Oakwood Ave., Youngstown 9, O. These new models, Series C, are particularly designed for the smaller asphalt plants, tank car heating, light asphalt storage tanks and batch plants. The Hi-Way hot oil heating system is based on the use of a non-pressure type of heat exchanger in which a suitable type of heat exchange oil is heated to the desired temperature—pumped to the points of heat requirement—returned to the heater—the lost heat replaced—all under the constant supervision of the best in temperature and combustion controls.

56

No-pushbeam highway width bulldozer described

Its new 15X bulldozer is described in a bulletin released by The Baker Manufacturing Co., Springfield, Ill. The bulletin illustrates the operational and portability features of "no-pushbeam" design in this tractor-dozzer combination and explains its versatility and maneuverability. The Baker 15X integrates the Baker "roll-action" blade and the frame of the 109 drawbar hp. Allis-Chalmers HD-15 tractor. It features a 96 in. overall width (legal highway portability—no permits day or night) and a 51 in. high moldboard, which raises a full 39½ in. above ground and bites to 15½ in. below ground.

57

New wire rope choker sling fitting

A new 4-page brochure describing its new wire rope choker sling fitting, available from Electroline Co., 4121 South LaSalle St., Chicago 9, Ill., shows typical applications for which the new fitting is suitable. There are close-up views of the optional locking shoe device, which keeps non-rigid loads tightly bound. "How to use it" drawings explain how the fitting works—how the pivoting members fit securely around the wire rope. And a cut away section shows the simple socket arrangement, which permits easy installation of the fitting and enables it to be re-used after the wire rope has worn out.

58

Book shows how arc welding pays

A new 40-page book showing how arc welding pays has been issued by Hobart Brothers Co., Troy, O. It contains over 100 photos pointing out how arc welding is used profitably in 18 different industries for production, maintenance, and repair. Some of the industries covered are: construction, automotive, heating, machinery, petroleum, farming, railroad and shipbuilding. Subsequent pages show line of Hobart arc welders, electrodes, accessories, and describes features of Hobart welders.

59

Half-tracks and dual-action dozers

A new 4 page circular on Blackhawk half-tracks and dual action dozers for Case tractors has been issued by Arps Corporation, New Holstein, Wisconsin. The dozer, which has a hydraulically controlled down pressure affording a cutting depth of approximately 3 in. below wheel level, is illustrated and described. The Blackhawk half-track, also illustrated and described can convert a wheel type tractor to a crawler type within an hour. The half-track can be removed in 15 minutes.

Solar Ephemeris and Polaris tables

The 1953 edition of "Solar Ephemeris and Polaris Tables" has been published by C. L. Berger & Sons, Inc., 37 Williams St., Boston 13, Mass. The 132-page booklet contains complete instructions, in English and Spanish, for determining azimuths from the sun and the altitude of Polaris, prepared by Herman J. Shea, associate professor of surveying, Massachusetts Institute of Technology.

Directions for making astronomical observations and computing results by direct solar observation and time from same observation; meridian by solar attachment; meridian by Polaris at elongation; azimuth by Polaris at any hour angle; latitude by sun at noon, and latitude by Polaris are included, as well as all requisite tables. A copy of the Solar Ephemeris can be obtained by writing to Berger and enclosing 50 cents to cover handling and mailing.

61

Applications of airplane-type disc brake

An 8-page descriptive brochure, listing some of the varied applications of the Good year airplane-type disc brake for industrial uses, have been issued by Good-year Tire & Rubber Co., Industrial Brake Department, Akron 16, O. It lists the advantages of employing single-disc brakes, and describes and pictures their application on a mine shuttle car, mine loading machine, glass bottle making machine, paper rewind machine, airplane crash fire truck, high-speed band saw, aircraft wind tunnel fan, mine locomotives, and aircraft turbine engines. These represent a small cross-section of the wide range of industrial applications of airplane-type disc brakes, which vary in diameter from 8 in. to 72 in.

62

Hydraulic torque converter crawler tractor

A new catalog in color on the Model HD-20 diesel-powered hydraulic torque converter crawler, issued by Allis-Chalmers, Tractor Division, Milwaukee 1, Wis., features a large sectional view of the complete tractor, other sectional views, and illustrations and descriptions of various components. The hydraulic torque converter drive is described in detail as to what it is, what it does, and what it means to the user. A spread is devoted to the matched allied equipment designed especially for this model.

63

Steel road drags, steel heavy duty brooms

A new 2-color brochure, issued by Kinney Spring Steel Broom Co., 56 Kearney St., Needham Heights, Mass., illustrates and describes Kinney spring steel road drags, drag frame sections, angle bars, and all-steel heavy duty brooms, as well as steel-head spring steel hand brooms, widely used for road and street maintenance, park maintenance and by highway construction contractors.

64

Data on sewer pipe and fittings

A new clay products catalog (L-5652) has been announced by American Vitri-fied Products Co., National City Bank Building, Cleveland, O. This 98-page catalog includes data on sewer pipe and fittings, perforated pipe, drain tile, and point compound and die cast sewer points. Also listed are A.S.T.M. and Federal specifications, and installation and purchasing hints. The book is thoroughly cross-indexed and is intended for use as both a reference and buying guide.

Here's what makes

"HEIL EQUIPPED" DUMP TRUCKS

PAY-OFF!



Heil double arm, twin cylinder, heavy-duty hoist.



Heil double arm, single cylinder, light and medium duty hoist.

HEIL Bodies and Hoists are built with your job in mind . . . to pay off in profit.

Heil hoists are fast-acting . . . in less than 12 seconds bodies are elevated to 50° or more! The rugged arm assembly is designed for strength, without dead weight. The simple toggle principle of the linkage eliminates troublesome parts, requires extremely low oil pressure.

Check these other Heil dump unit advantages:

- Lightweight design for bigger payloads;
- no-sag floor construction for long body life;
- low mounting height to make hand-loading easier.

THE HEIL CO.

Dept. 443, 3004 W. Montana St., Milwaukee 1, Wis.

Factories: Milwaukee, Wis.—Hillside, N. J.



PLATFORM CONVERSION HOIST



Heiliner 2-wheel Tractor and Scraper



CONTRACTOR'S BODY

Sales Offices: New York, Hillside, Washington, D. C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil.

(Continued from page 95)

20

Truck-mounted air compressor assembly

A new truck-mounted air compressor assembly, known as an "Air Van," announced by Davey Compressor Co., Kent, O., is designed around the recently introduced Fageol Van Truck of Twin Coach Co., Kent, O. Air Vans are offered with a choice of either 105 cfm or 160 cfm standard



160 c.f.m. Davey "Auto-Air" Compressor

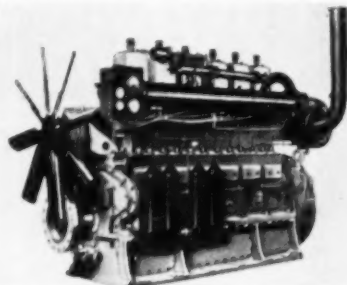
Davey "Auto-Air" compressors. These are driven directly from the truck engine through a Davey heavy duty power take-off installed in the truck driveshaft.

Circle the number of this item on the post card and get additional information.

21

Turbocharged diesels developed by Waukesha

The advantages of turbocharging has been extended to relatively small engines by Waukesha Motor Co., Waukesha, Wis.,

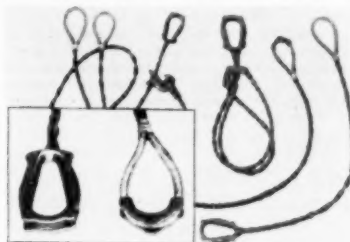


This 6-cylinder Turbocharged Model LDS Develops 570 HP at 1200 rpm

resulting, it is stated, in substantial power increases and greater fuel economy. Turbochargers have been applied to five basic diesel engine sizes, three for transportation or industrial service and the two largest as complete power units for industrial service. The five engine sizes have 426, 779, 1197, 1905, and 2894 cu. in. displacement. The 1197 cu. in. model is supplied either as a bare engine or complete unit.

Circle the number of this item on the post card and get additional information.

nerly Ave., St. Louis 12, Mo., features an entirely new type of reusable thimble fitting that is reported to save sling users up to 20% or more. These pin-lock thimbles are attached by pins instead of conventional hammered-down clamps—and are readily removable for reuse. Since sling fittings generally outlast the sling itself, substantial savings are stated to be gained by the reuse of them. For example, on a sling made of 1/2 in. wire rope, of 10 ft. length, it is claimed that reuse of two full thimbles produces a savings of 23.6%. On



Red-Strand 8-Part Braided Sling

a 10 ft., 3/32-in. rope sling, reuse of thimbles saved 8.5%. The Red-Strand 8-part braided sling itself is a new Leschen product.

Circle the number of this item on the post card and get additional information.

23

Unit for lubrication of conveyor trolley wheels

A new lubricator for conveyor trolley wheels has been announced by the Alemite Division of Stewart-Warner Corporation, 1826 Diversey Parkway, Chicago 14, Ill. The lubricator delivers a pre-set, constant shot of either oil or lubricant to each trolley wheel on each side of the conveyor

22

New slings feature pin-lock fittings

A new 8-part braided sling, introduced by A. Leschen & Sons Rope Co., 5909 Ken-

Built Rugged for Hard Use and High Speed Trailing



"SPEED-MASTER" KETTLE

Saves up to 50% in fuel and time in melting asphalt, tar, pitch, bituminous compounds. The only kettle with flat surfaced heating tubes that provide greater heating surface. Heats and melts as much as 2 ordinary kettles. Has "Flash-Proof" Flues. Trailer models up to 230 gal. size. Can be furnished to burn kerosene or L.P. gas, and with hand or power spray attachment and barrel hoist.

Write for Catalog

BOTTOM-FIRED KETTLE

Or, if you prefer, here's the old reliable Hauck kettle with improved kerosene torch burner mounted outside the kettle. Sizes to 165 gal., on tires or steel wheels.



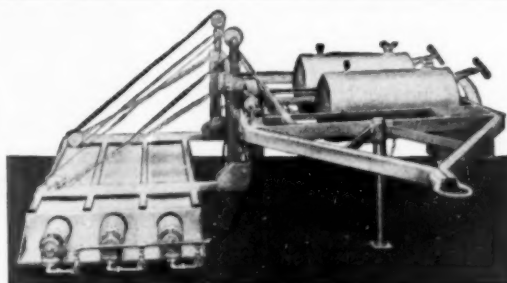
OTHER HAUCK HEATING FAVORITES



HAUCK MANUFACTURING CO.

119-129 Tenth Street

Brooklyn 15, N. Y.



Why destroy Base of Pavement to apply a New Top

White Surface Heaters

These machines offer the quickest, cleanest, most economical method for repairing or resurfacing any bituminous pavement.

They melt 1" of old surface in 5 minutes. It can be scraped away and new top applied without damaging base course. This has been successful practice for years.

2 sizes: B-4, above, has 3x6' pan; Model B-1 has 6x6' pan, 6 burners. Square cutting edges. Dual fuel tanks. Hoisting winch. Can be towed on steel wheels, and moved by hand.

Write for Catalog

Elkhart 20, White Mfg. Co. Indiana

system into which it is installed, simply by the flick of a switch. When every wheel in the system has been serviced, the system may be switched off and is in constant readiness to go into operation again at whatever lubrication interval load and other conditions required. The entire unit is contained on a section of I-beam 37½ or 40 in. in length which is fitted into the conveyor track at any convenient spot in its length, so long as the location is within reach of the house air line and a 115-V., 60-cycle electrical outlet.

Circle the number of this item on the post card and get additional information.

24

Easily installed tractor power steering attachment

A power steering attachment, developed by Behlen Manufacturing Co., Columbus, Nebr., is claimed to produce greater efficiency by tractor operators. Installation of the unit takes about an hour. Approximately 2 ft. of the conventional center steering shaft are removed and saved. A new piece of shaft with the power unit attached is inserted. A small hydraulic pump is inserted between the timing gear case and the magneto or distributor assembly. The power unit, attached to the



In this picture Main Assembly of Attachment can be seen on Steering Shaft Ahead of Steering Wheel

new section of shaft beneath the steering wheel, consists of a fluid pump driven off the tractor engine with a hydraulic gear motor converting the fluid pressure into mechanical torque.

Circle the number of this item on the post card and get additional information.

25

Self heating asphalt smoothing iron

A self heating asphalt smoothing iron is shown herewith on a patching job. The iron uses a small quantity of gasoline per day, becomes hot in 10 minutes and remains hot all day. It has no complicated working parts, and no experience is needed to operate it. To add to the economy of the tool the shoes have been designed so that they can be easily replaced when worn. The tool

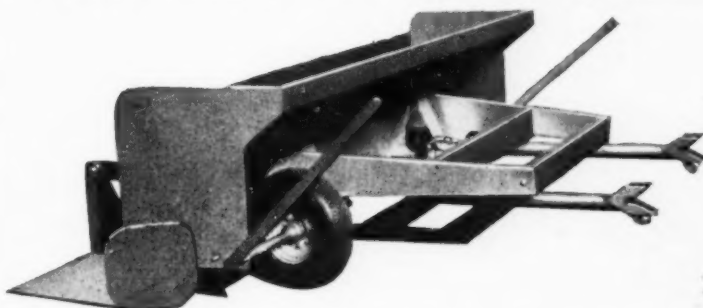


Surfa-slick on Patching Job

weighs 40 lb. and is claimed to make a smooth, level, thoroughly compacted and sealed asphalt surface. This tool is known as the Surfa-slick. It is made by Camm Manufacturing, 1425 First St., San Fernando, Calif.

Circle the number of this item on the post card and get additional information.

The MILLER Bituminous Concrete and Aggregate Spreader



UNBEATABLE for Driveways, Parking Lots, Light Traffic Roads and Streets. Speeds up all paving jobs—base and top. Self-leveling action on any base contour. Cuts hand labor costs 90%. Spreads ½" to 8" thickness. Max. capacity 1 ton per min. Highly portable—carried by tail-gate hooks.

Write today for literature and name of nearest dealer.

THE MILLER SPREADER CORP.

120 PIKE STREET

• YOUNGSTOWN 2, OHIO

ROCKLAND

means:

- The best in land clearing equipment.
- All teeth are removable and replaceable.
- Number of teeth is optional.
- Spacing of teeth may be CHANGED to suit job at hand.
- This means ROCKLAND RAKES are superior for ALL TYPES of land clearing.
- Teeth are capped with replaceable abrasion resistant wear points.
- Pusharms are optional, complete with all connections.
- INTERCHANGEABLE WITH ANY MAKE OR MODEL DOZER, hydraulic- or cable-operated.



Distributors Protected
Write for the name of your nearest dealer

SHIRLEY EQUIPMENT CO.

26 Elton Street • Providence 6, Rhode Island

ANOTHER **GW** PRODUCT



Gar Wood

"ROLL-RITE" DOZERS ... Utilize all your Power!

Only Gar Wood offers both hydraulic and cable controlled Tipdozers and Dozecastors, perfectly matched to your Allis-Chalmers tractors. When tractors are used for maximum utility, with both dozer and scraper, Gar Wood's model 281 cable control unit will easily handle either. When used as a dozer only — front mounted model 151 cable control unit is available. Both units have planetary gearing for smooth, easy operation. **TIPDOZERS** can be adjusted vertically up to 12" at either end of moldboard. Angle of moldboard on **DOZECASTERS** can be changed to 25° in either direction. **SPECIFY** a Gar Wood dozer for your new Allis-Chalmers tractor to get more work from your power!

A FULL LINE OF HYDRAULIC DOZERS

Gar Wood Tipdozers and Dozecastors, with all hydraulic equipment self-contained in a streamlined, front-mounted "package" are available for all Allis-Chalmers tractors.



F-536 P

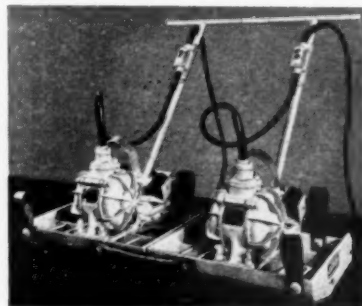
GAR WOOD INDUSTRIES, INC.

Findlay Division • Executive Offices • Wayne, Michigan

26

Double-unit compactors handled by 1 man

The manually-guided, self-propelling compactors of Jackson Vibrators, Inc., Ludington, Mich., are now available in teams of two-abreast and two-in-line. With either double hook-up, it is stated one man quite easily does the work of two on most jobs. The two-abreast hook-up has a total width of 4 ft. In the two-in-line version, the oper-



Double Hook Up of Jackson Compactor

ator directs travel by pivoting the rear compactor. One pass of this double unit, it is stated, should achieve specified densities. Attachments for double hook-up are available to contractors who have two or more Jackson compactors.

Circle the number of this item on the post card and get additional information.

27

New road sign has no fluorescent materials

A new product, Fre-Lite, for highway and street signs has been announced by Harry K. Ashley Mfg. Co., 2305 Cherry St., San Leandro, Calif. The signs are stated to combine a day and night usefulness by presenting good appearance under normal daylight lighting and utilizing reflected light, particularly of vehicle headlights, for prominent visibility at night. Fre-Lite contains no fluorescent or "luminous" materials, but applies the laws of physics to gain brightly colored reflected light. It is stated that a stop sign erected for test purposes by the city of Alameda, Calif., is now, after more than three years of continuous service, still in excellent condition despite the fact that this test stop sign is erected upon an exposed location directly fronting San Francisco Bay where it is continually subject to all the normal deteriorating effects of weather and in particular the usually destructive effects of ocean salt spray.

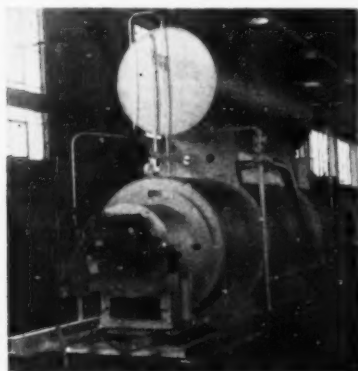
Circle the number of this item on the post card and get additional information.

28

Hot oil heating system for asphalt plants

A new series of heaters built particularly for asphalt road mixing and distributing plants has been announced by The Hot Oil Heater Co., Inc., 246 Walnut St., Newtonville 60, Mass. The heater is made in three sizes for the smallest and largest operations including the heating of tank cars. Exclusive features claimed for the hot oil heater (patents applied for) are the safest heat exchanger, cold-oil seal, automatic moisture and air release without spilling, operation of the pugmill ram, and ready flexibility to efficiently supply heat to any type of plant operation at any time fully automatically. No special air compressor or hydraulic system is needed to operate the ram on the pugmill gate or cylinders when

steam is replaced by the hot oil heater system. The new series is designed to operate automatically at any required temperature up to 450° F. For plants using a steam mix the Hot Oil Heater Co., Inc. will



Heater being installed in industrial plant. The general appearance, however, of the heater for asphalt plants would be practically the same

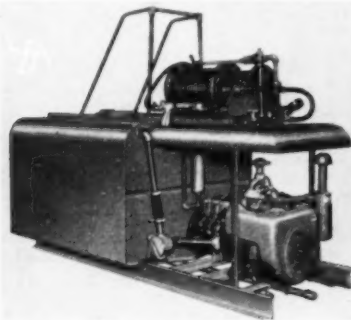
furnish a properly designed steam chest to furnish the required steam. Heat is supplied by hot oil coils, thus permitting the entire plant to be serviced by hot oil.

Circle the number of this item on the post card and get additional information.

29

Brush sprayer cuts road maintenance costs

A new brush control sprayer, announced by John Bean Division, Food Machinery and Chemical Corporation, Lansing 4, Mich., is equipped with a John Bean Royal 20 triplex pump, which delivers 20 gal. per minute at pressures up to 700 lb. It has two 100 ft. lengths of high pressure hose, a handy control for quick changes of pressure and two spraymaster guns with quick-acting shut-offs to save spray material. The unit handles all types of spray materials, even abrasive types, because cylinders are porcelain lined. The sprayer is powered by a 12 HP air-cooled Wisconsin 2-cylinder gasoline engine. The corrosion resistant steel tank is leak-proof and has a 200 gal. capacity. This Model 20-MTS "Ranger" is easily mounted on a pick-up truck or pow-



Model 20-MTB John Bean "Ranger" for truck mounting

er wagon. Another smaller sprayer, the Model 07-MTBT has also been developed. This has a No. 77 John Bean little giant duplex pump, and has a capacity of 7 gal. per minute at 400 lb. pressure. It is powered by a Wisconsin 4 HP air-cooled engine. It can be drawn by a Jeep, passenger car, light truck or tractor.

Circle the number of this item on the post card and get additional information.
(Continued on page 139)



GAR WOOD Buckeye

MATERIAL SPREADERS FINEGRADERS and HI-WAY WIDENERS

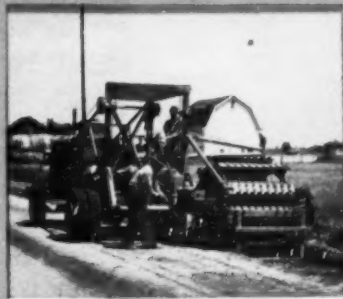
Buckeye Surface Material Spreaders are available in models to give 9', 10' and 12' widths of spread. Materials are spread exactly where wanted — to controlled depths with clean cut edges. No excess material to be raked up later by hand! . . . Flow can be regulated for either uniform or tapered spread — from a mere sprinkle up to 2 1/2" depth. . . . Width of spread can be narrowed in 6" multiples.

BUCKEYE POWER FINEGRADERS

Cut the grade right to specs ready for paving! Two sizes in widths adjustable up to 25 ft. One man operation.



BUCKEYE HI-WAY WIDENERS



Dig flat bottom, clean ditches up to 48" wide and 18" deep, ready to receive material. Does not delay traffic on roads. Digs up to 1 mile per day . . . One man operation.

GAR WOOD INDUSTRIES, INC.
Findlay Division • Executive Offices • Wayne, Michigan



F-5911

FORKE BROTHERS Equipment Auctions

bring

TOP RESULTS

ALL OVER THE COUNTRY!

Help yourself to the advantages of a well-promoted, capably-conducted equipment auction!

There's no substitute for complete planning and effective promotion in an equipment auction. You're dealing with big stakes, so don't take the chance of losing your profit. Secure the services of Forke Brothers, a company of successful auctioneers who have been specializing in equipment auctions for more than thirty years. Let Forke Brothers map you a "Plan of Auction"—including careful planning, solid promotion, and real a-c-t-i-o-n at the auction!

Phone, Write or Wire for
Complete Information.
No obligation.

FORKE BROTHERS

The Auctioneers

321 Sharp Bldg. Lincoln, Nebraska Phone 2-7045

— AUCTION LEADERSHIP SINCE 1921 —



AVERY FORKE



DON FORKE



DEAN FORKE



HERB FORKE



E. W. FICKE

as a typical
example:



FULTON CONSTRUCTION COMPANY
ENGINEERS CONSTRUCTORS
4800 WEST LAMAR
P. O. BOX 13167
HOUSTON 19, TEXAS

Dear Avery:

... We are pleased to enclose a check for your commission, feeling as we do that you did a wonderful job for us. The buyers seem just as pleased with the auction as we are. Everyone has praised the auctioneers. I feel sure we shall see you in Houston for sales in the future.

... certainly enjoyed knowing and working with the Forkes. It was all fun instead of the strain we had expected the auction to be.

Please phone us when you come to Houston for your next sale. Meantime we wish you continued success.

Very truly yours,

H. H. Fulton
H. H. Fulton



BUSINESS REPLY CARD
First Class Permit No. 52, Sec. 34.9, P. L. & R., Chicago, Ill.

ROADS AND STREETS

22 WEST MAPLE STREET

CHICAGO 10, ILLINOIS



BUSINESS REPLY CARD
First Class Permit No. 52, Sec. 34.9, P. L. & R., Chicago, Ill.

ROADS AND STREETS

22 WEST MAPLE STREET

CHICAGO 10, ILLINOIS



BUSINESS REPLY CARD
First Class Permit No. 52, Sec. 34.9, P. L. & R., Chicago, Ill.

ROADS AND STREETS

22 WEST MAPLE STREET

CHICAGO 10, ILLINOIS

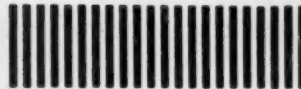


BUSINESS REPLY CARD
First Class Permit No. 52, Sec. 34.9, P. L. & R., Chicago, Ill.

ROADS AND STREETS

22 WEST MAPLE STREET

CHICAGO 10, ILLINOIS



My Name _____ My Title _____

My Firm or Govt. Dept. _____

St. Add. _____ City _____ State _____

Send me information about products advertised on:

Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____

Send me more new equipment information on items circled:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
4/53 RAS

My Name _____ My Title _____

My Firm or Govt. Dept. _____

St. Add. _____ City _____ State _____

Send me information about products advertised on:

Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____

Send me more new equipment information on items circled:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
4/53 RAS

My Name _____ My Title _____

My Firm or Govt. Dept. _____

St. Add. _____ City _____ State _____

Send me information about products advertised on:

Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____

Send me more new equipment information on items circled:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
4/53 RAS

My Name _____ My Title _____

My Firm or Govt. Dept. _____

St. Add. _____ City _____ State _____

Send me information about products advertised on:

Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____
Page _____ by _____ Page _____ by _____

Send me more new equipment information on items circled:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140
4/53 RAS

TREMENDOUS PARTS SAVINGS

WE HAVE IN STOCK

Pistons, Sleeves, Cylinder Heads, Crankshafts, Track Rollers, Pins & Bushings, Blades, Wire Rope, Clutch & Brake Linings and hundreds of other parts to fit Caterpillar, International & Allis-Chalmers Diesel Tractors, Engines, Scrapers and Motor Graders. All parts guaranteed.

CHATTAHOOCHEE TRADING COMPANY

1045 SIXTH AVENUE
COLUMBUS, GEORGIA

USED EQUIPMENT

Located at Eau Claire, Wis.:

- 1 Meili-Blumberg Grader
- 1 Caterpillar Motor Grader No. 11 with Plow & Wing
- 1 International TD-35 Tractor

Located at Green Bay, Wis.:

- 1 Caterpillar Motor Grader No. 11 with Scarifier
- 1 International TD-6 Tractor with Angledozer
- 1 International TD-35 Tractor with Dozer
- 1 Adams Motor Grader No. 301
- 1 Gallion Motor Grader with Int. UD-14 Engine
- 1 International I-6 Tractor with Loader
- 1 International TD-9 with Bucyrus-Erie Dozer-shovel

BARK RIVER CULVERT & EQUIPMENT CO.

Bark River—Ironwood, MICHIGAN
Eau Claire—Green Bay—Madison—
Milwaukee, WISCONSIN
Since 1906

FOR SALE

New Buda diesel, model 6BTS-468, engine still in crate, with complete attachments for installation. Buda will supervise your installation and warrant engine. List price of \$3900. We will, for immediate sale, take \$2500. Call us today.

KENNETH C. KOCH
CHILLICOTHE, ILLINOIS

EQUIPMENT FOR SALE

REBUILT AND GUARANTEED

- 5—Six ton Huber 3-wheel rollers with Caterpillar Diesel engines.
- 10—Eight ton Huber 3-wheel rollers with Caterpillar Diesel engines.
- 20—Ten ton Huber 3-wheel rollers with Caterpillar Diesel engines.
- 20—Twelve ton Huber 3-wheel rollers with Caterpillar Diesel engines.
- 1—TD #6, Serial #TDBK 16845-17.
- 1—#6, Cat. Angle Dozer with Hyster winch, Serial #9U-7769.
- 1—Lorain L80J Dragline Caterpillar D-13000 engine and 2 yard bucket, Serial #20889.
- 1—Lorain L50K Dragline Caterpillar with D-318 engine, 1 yard bucket, Serial #20880.
- 1—Lorain TL-25 Dragline with Caterpillar D-315 engine, 3/4 yard bucket, Serial #21167.
- 1—Lorain TL-25 Back Hoe with Caterpillar D-315 engine, 3/4 yard bucket, Serial #21198.
- 1—Lorain TL-25 Dragline with Caterpillar D-315 engine, 3/4 yard bucket, Serial #21459.
- 2—Lorains TL-25 Dragline with Caterpillar D-315 engine, 3/4 yard bucket, Serial #21435.
- 1—Lorain MC-414 Motor Crane with Waukesha Diesel engine, Serial #18466.
- 1—Lorain MC-3 Motor Crane with Cummins Diesel engine, Serial #10266.
- 2—TD-24, International Tractors with Bucyrus-Erie Dozers, Serial #TDF-2095, and #TDE-2000.
- 1—TD-18, International Tractor with Bucyrus-Erie Dozer, and Isaacson winch.
- 1—TD-18, International Tractor with Bucyrus-Erie Dozer, Serial #TDR-23224.
- 1—Byer's Motor 83-Crane with General Motors 371 engine.
- 10—300 Amp. Lincoln arc welders, 40 volts.
- 40—200 Amp. Lincoln arc welders, 40 volts.

JOSEPH BEHR & SONS, INC.

251 West 57th Street, New York, N. Y.

Phone: Judson 6-0118

SALE OR RENT

- 6 CATERPILLAR DW10 TRACTORS**—1V Series with CATERPILLAR NO. 10 Scrapers, Cable Controlled. Excellent Mechanical Condition. Good Rubber, Excellent Appearance.

Price.....\$16,500 each, F.O.B. Baltimore, Maryland

- 7 LeTourneau Super C Turnapulls**—Running Condition

Price.....\$2,500 each, F.O.B. Baltimore, Maryland

ALBAN TRACTOR COMPANY, INC.

8531 PULASKI HIGHWAY, BALTIMORE 6, MD.

PHONE: Peabody 7777

FOR SALE

- 1—P&H 255A Shovel, diesel power, 1948 machine, overhauled.

- 2—Allis-Chalmers HD7 Bulldozers. 1950 Machine. 855-B P&H 2 yd. Shovel & Dragline Comb. Diesel powered. Exc. Cond.

- 3—Cat. Scrapers. Model 80, like new.

- A drum Black Top paver 8 to 12 ft. width capacity. 1947 machine.

- 2—500 C.F.M. Ingersoll Rand.

- 2 Stage gas compressors on rubber.

- 105 C.F.M. Gardner Denver Portable gas compressor, like new.

"Let us have your list of surplus equipment. We may be able to sell it for you."

Charles V. Fish Co.

Commonwealth Building
Phone HENlock 5-4701
Allentown, Penna.

FOR SALE

- 1—Osgood Truck Crane Model 200 Mounted on 1940 Model L110-5200 Mack Chassis.
1—1948 Model 6 Northwest Shovel with Murphy Diesel Engine.
1—1946 Model 80-D Northwest Shovel with Murphy Diesel Engine, also equipped with 70 Ft. Crane Boom.
1—Model 18 Northwest Shovel—1½ Cu. Yd. Capacity.
1—D-8 Caterpillar Tractor Ser. #1H9926 equipped with Cable controlled Angledozer.
1—1952 Model 616 Wheel Type Buckeye Hi-Way Widor with GMC Diesel Engine.
3—K-11 International Trucks with U-200 Timken Rear Ends and 8 Cu. Yd. Box Bodies mounted.
3—Model 27FD 15 Ton Euclid Rear Dump Trucks.
1—Model 2FD 15 Ton Euclid Rear Dump Truck.
1—Model 5FD 15 Ton Euclid Rear Dump Truck.
1—Slightly used Shovel Front, crane—shovel, ¾ Cu. Yd. Buckeye Model 70 Attachment. Manufactured by Buckeye—Serial #3157.
1—New Shovel Front, crane—shovel, 30 to 40 ton capacity, 1½ Cu. Yd. size 25 Ft., Link-Belt, Type K-48. Manufactured by Link-Belt.
1—Ingersoll-Rand Air Compressor, Model 40-B Serial #40T 17253, size 315 Cubic Feet per minute. (NEW)
The above mentioned equipment is subject to Prior Sale.

J. H. BEERS, INC.

P. O., R. D. 2 Bangor, Pa.

1. Lorain #88 Shovel; includes drag front, A-1.
2. TD-18 Tractor; Serial TDR-10125-T7EM.
3. TD-18 Tractor; Serial #TDR-15410.
4. 2 Euclid Bottom Dump Trucks #KG839, Bargain.
5. Syntrol Gas Vibrator, Type 2, Air Cooled Wisconsin Engine.
6. GMC Concrete Mixer #16-S; Air Cooled Wisconsin Engine.
7. Chicago Pneumatic Vibrator #CP219, 20" Hose.
8. Approx 87 sets Spirator Farm Clamps; Assembly No. 835, Tie Rod ½", Stud Rod ¾", 6½ lbs. W/handle washers.
9. Ingredient Wheelbarrow Scale, 3 beam.
10. 1950 V License Chevrolet Truck.
11. Thor Paving Breaker #25; 1½" Hoz.
12. 2 Used concrete buggies W/Pneumatic tires.
13. Manitowoc Hi-Lift #3500; Serial #3555, Motor #387928P.
14. Manitowoc #4500; Serial #4520; Diesel #NVHIS Engine.
15. 2 LeROI Tractors.
16. 2 McCarthy Drills: 1 Vertical & 1 Horizontal.
17. Considerable quantity of tile underdrain at big saving.

All items are priced to sell. If interested in further information contact

D. C. PENOYER & CO.

1216 S. Second St., Clearfield, Penna.
or call Clearfield 53648

FOR SALE

Two (2) Allis-Chalmers Model 54 Road Graders with Sweeper Attachment.

\$3,000.00 Each

F.O.B. Staten Island, N. Y.

Condition Excellent

CHARLES

MEINERSMANN

47 Highland Ave. Elizabeth 3, N. J.
Phone ELizabeth 3-2295

Reconditioned Equipment
FOR SALE AT REDUCED PRICES . . .

Super C. Tournapulls,
Scrapers (tractor drawn),
C and D Roadster
Tournapulls

DRAVO-DOYLE CO.

2601 Preble Ave., PITTSBURGH 33, PA.



FOR SALE

Koehring 303 Shovel ¾ yd. and Dragline Combination. Cat. 4600 Engine.

Lima 1201 drag, Cummins Diesel. Northwest 95, w/ 75' boom, 2 ½ yd. bucket, Twin City Engine.

Insley K-12 drag, 40' boom, Chrysler eng.

Insley K-12 shovel attachment, like new. \$1200.00.

IHD 19 Bulldozer with Baker Blade, A-1 Cond. \$11,500.00.

Kohler 1500 watt AC light plant. Brand new. \$500.00.

SINDLINGER SUPPLY CO.

New And Used Construction Machinery
111 Blackman Street, Clinton, Ind.
Phone 128 Night Phone 1223W

AVAILABLE

PROJECT MANAGER OR GENERAL CONSTRUCTION SUPERINTENDENT

Age 45, free to travel or relocate. Civil Engineer, large and heavy projects, U. S. Flood Control Projects, Airports, large Sewer and Water main installations, heavy State Highway and Expressway Projects, Concrete Foundations, Paving, Bridges, some industrial and structural construction. Handled sub-contractors. Cost conscious. Labor relation problems 16 years experience. Will accept Foreign service. Can furnish A-1 references, not afraid of hard work and long hours. Salary \$175.00 weekly plus bonus arrangement.

Contact

J. H. SMITH

144 Westminster Road
Pho.: Hillside 3472-J evenings
ROCHESTER 7, NEW YORK

TRUCKS WANTED

Highest dollar value paid for new and used trucks and all kinds of used equipment. All types of truck equipment bought and sold, including war surplus. Write, phone or wire:

BILL FISHEL

VANDEVENTER AUTO SALES

717 So. Vandeventer Ave., St. Louis, Mo.
PHONE FRANKLIN 1750

FOR SALE

KOEHRING SHOVEL: 1½ yd., Cat. diesel, new 1951\$35,000.00
 MARION SHOVEL: ¾ yd. crane & backhoe, G.M. diesel, extra large tracks, new 1948\$17,000.00
 LORAIN SHOVEL: ¾ yd. and backhoe, Cat. diesel new 1950\$17,000.00
 UNIT ½ YD. Crane, new 1951\$7,000.00
 2 UNIT BACKHOES, ½ yd., diesel\$8,500.00
 H.D. 20 WITH Pusher block, 17 yd. LaPlant Choate Wagon, used 400 hrs.\$28,000.00
 HD-19: NEW motor, new tracks, angleblade\$10,000.00
 3 GARWOOD Carryalls, 11 yards ea.\$3,500.00
 HD-9 ANGLEBLADE, used 14 months\$9,000.00
 HD-5: NEW 1952, new motor\$6,500.00
 5 HD-14 BULLDOZERS with blades\$3,500.00 to \$6,500.00
 CAT. D-6 Angleblade, new 1951\$7,500.00
 GRADER Cat #12\$7,500.00
 HOUGH Loader 1½ yd., 4 wheel drive\$6,500.00
 3 TERRA COBRAS, new motors\$6,500.00
 Griffin Well Point System.
 Also trucks, rooler, sheep foot roller, concrete mixer, Fordson tractor, Galion roller.

**CONTRACTOR DISPOSING
SURPLUS EQUIPMENT**

FELIX CLAUSS & SONS
 4400 D. St.—Philadelphia 20, Pa.
 MI. 4-7963

Phone Us 7-1594

CONSOLIDATED RUBBER CORP.

Route 4, Syene Rd.

Madison 5, Wis.

FIRST LINE

(Tax Included)

825x20 10 ply..\$ 55.00
 900x20 10 ply.. 66.00
 1000x20 12 ply.. 83.50
 1200x24 16 ply.. 196.50
 1300x24 8 ply.. 125.50
 1300x24 18 ply.. 261.00
 1400x24 20 ply.. 302.00
 1800x24 20 ply.. 566.00
 2100x24 20 ply.. 737.50
 2100x24 24 ply.. 806.00
 2100x25 20 ply.. 737.50
 2100x25 24 ply.. 806.50

SECONDS

900x16 8 ply NDT.....\$ 23.00
 750x20 8 ply NDT..... 35.00
 900x20 8 ply NDT..... 45.00
 1100x20 12 ply NDT..... 65.00
 1100x22 12 ply Rock Lug.... 75.00
 1400x20 12 ply NDT..... 115.00

**SURPLUS RECAPPED
NEW FULL CAP**

750x20 NDT.....\$20.00
 750x20 Conventional..... 20.00
 825x20 Conventional..... 28.50
 900x20 Conventional..... 30.00
 1000x20 Conventional..... 35.00

**USED
SURPLUS**

600x20	\$ 8.00	825x20	\$20.00
650x20	9.50	900x20	18.50
700x20	10.00	1000x20	25.00
750x20	12.50	1100x20	29.50

TERRA: 4% Discount when check accompanies order, SD, DL, C.O.D.

F.O.B. MADISON

CONSOLIDATED RUBBER CORP.

BEST KNOWN FOR QUALITY

FOR SALE

1—Lorain M-L41. Ser. #14919
 Cat. diesel. 3 yd. combination shovel & goose neck backhoe\$17,500.00
 1—A.C. HD10. Ser. #W7975
 Baker angle dozer 6,000.00
 1—D-7 Cat. with PCU & angle dozer. Ser. #7M1673 8,500.00
 1—HD-7. Ser. #W18074 with Baker angle dozer. Buckeye PCU and LeTourneau Med-el M5-8 yd. pan 9,500.00

PARISO BROS.

**4747 Genesee Street
 Buffalo 25, N. Y.
 Phone PL. 3675**

FOR SALE

Used Pioneer crusher 9'36 in. jaw plain bearing, 30 x 18 roller bearing roll crusher, 3 x 14 Symonds vibrator screen, roller bearing conveyor, 24" wide belting. Plant without engine mounted on tandem dual rear tires, front for 5th wheel truck-tractor hook-up. In good operating condition. fab Greenbush, Minnesota, \$6600.00.

1—9G D7 Cat with straight LeTourneau Dozer & P.C.U. A good machine, \$3850.00.

Northwest 80D, 70 ft. boom, 2½ yard Hendricks bucket, M E 6 Murphy Diesel Engine, Kohler light plant, long wide crawlers, high gantry. A good machine priced to sell or will rent.

**HERBERT REESE & SONS
 GREENBUSH, MINNESOTA**

Trucks - Trailers

1949 Ford F-8 with W-45 Holmes Wrecker
 1950 International L170 with W45 Holmes Wrecker
 1945 Federal 7½ ton 6x6 Tandem with Garwood Swing Crane
 1942 Reo 7½ ton 6x6 Tandem Truck
 1945 White 6x4 Tandem 10 yard Dump, Cummins Diesel
 1950 International L195 Tractor, Fully Equipped
 1948 Fruehauf 30 foot Cattle Trailer
 1948 Andrews 28 foot Tandem Grain Trailer
 Fruehauf 16 wheel Tandem Lowboy Trailer

BILL FISHEL'S

**Vandeventer Auto Sales
 717 SOUTH VANDEVENTER
 PHONE FRANKLIN 1750
 ST. LOUIS, MO.**

**SENSATIONAL BARGAINS
 ON NEW HERCULES DIESEL POWER UNITS**

Model DJXC—59 H.P. W/clutch	\$1660.00
Model DWXD—91 H.P. W/clutch & outboard bearing	2600.00
Model DRXC—100 H.P. W/clutch & outboard bearing	2750.00

BRAND NEW—NOT GOVT. SURPLUS

PHILLIPS MACHINERY COMPANY
 929 Myers Street — Richmond, Virginia

FOR SALE

One Model 4500 Manitowoc Dragline powered with Twin G.M.C. motor, 120 ft. Boom, 5 cu. yd. Drag Bucket, in first class condition.

DELAWARE TRACTOR CO.
 1201 Childs Ave. - Tel.: Sunset 97910
 Drexel Hill, Penna.

Liquidating C. G. Bridges Estate,

(ROAD CONTRACTOR)
Escanaba, Mich.

- 1—Pioneer 305 Washing Plant complete
- 3—DW 10 Caterpillar Tractors & Wagons, Serial # 1N-2925-6-7
- 1—D-8 Cat tractor cable bulldozer—1-H-1963
- 1—D-6 Cat tractor cable bulldozer—2-H-7021
- 1—TD-14 Int. tractor—Hydraulic bulldozer TDFA 17937
- 1—Adams leaning wheel pull grader, 8 ft. blade
- 1—Galion EZ lift pull grader, 12 ft. blade
- 1—Adams Power Grader, Model 511, diesel
- 1—Adams Motor Grader Model 50, gas
- 1—3 to 5 yd. LeTourneau Scraper
- 1—8 to 10 yd. Heil Hydraulic Scraper
- 1—10 to 12 yd. LeTourneau Scraper
- 1—1 yd. "Teco" scraper
- 1—48" dia. Double drum Sheepfoot Roller
- 1—C. H. & E. #11 Triplex Water pump
- 1—27E Rex Paver, serial # G-9-9700
- 1—315 ft. Ingersoll Rand Portable gas engine driven Compressor with Ingersoll Rand Wagon drill #4273
- 1—160 ft. Davey Portable Compressor, pneumatic tires
- 1—Ottawa Self propelled Hydra Hammer for breaking concrete
- 1—Galion stone spreader
- 1—Seaman Tiller without power (type C)
- 3—Portable pneumatic tired Toolhouses
- 1—Flat bed 5th wheel trailer
- 1—300 Amp. Gas driven Hobart Welder with lighting generator
- 1—McCormick Deering Farmall Tractor
- 1—1/2 yd. Bay City Crawler Shovel, Model 30
- 1—3/4 yd. Buckeye Crawler Crane & Dragline Model 70
- 1—3/4 yd. Northwest Shovel & Dragline Model 25
- 1—1 yd. Northwest shovel Model 4
- 1—1 yd. Koehring diesel crawler shovel
- 1—1 1/4 yd. Northwest Shovel & Crane Model 5
- 1—Schield Bantam Crane & Dragline mounted on GMC 6x6 serial 22488
- Several 3/4 yd. Page dragline buckets
- 1—45 ft. Crane boom
- 1—50 & 1—51 Ford Pick-up
- 5—GMC 1949 Dump trucks
- 1—Ford F-8 tractor 1949
- 1—Ford F-8 Dump truck 1951
- 2—Ford F-6 Dump trucks 1949

THIS EQUIPMENT IS PRICED
TO SELL

**Mertes
Machinery Company**

1622 So. 1st Street
Milwaukee 4, Wis.

ASK FOR MR. PARENTEAU

FOR SALE

8 — 2 yard High Dump Ready-Mix Trucks mounted on late model chassis. All overhauled, painted, in good condition. Priced to sell. Will finance.

McNAMEE READY-MIX CONCRETE COMPANY

ZENIA

P. O. BOX 173

OHIO

FOR SALE

Complete sand and gravel washing plant as follows:

- 18"x6" steel plate feeder 5 h.p. motor.
- 24"x60" belt conveyor 7 1/2 h.p. motor.
- 16"x40" belt conveyor 5 h.p. motor.
- 18"x40" belt conveyor 3 h.p. motor.
- 8"x24" Austin Western jaw crusher 20 h.p. motor.
- 12"x24" Eagle hammer crusher with 40 h.p. motor.
- 3"x6" double deck vibrator screen 5 h.p. motor.
- 3"x8" triple deck vibrator screen 5 h.p. motor.
- 11"x36" bucket elevator with 25 h.p. motor.
- 5" cameron impeller pump with 30 h.p. motor.
- Sand drag 4"x4" paddles, 45' chain, and 5 h.p. motor.
- 2—40 ton steel bins with slide discharge gates.
- Sauerman 1 cu. yd. slack line with practically new 2-drum hoist, and 60 h.p. motor with auto type starter.
- 90' mast, cables and bucket.
- 3/4 cu. yd. Blaw-Knox clamshell.
- 3/4 cu. yd. Owens clamshell
- 2 cu. yd. dragline bucket.
- 24 ton Fairbanks truck scales.
- 4 cement stove storage silos.
- Various electric motors 100 h.p. to 5 h.p., 440 V., 3 phase, rewound. Exceptionally low priced for quick sale.

**THE FREDERICKTOWN
SAND & GRAVEL COMPANY**

C. G. Tugend, Mgr.

Phone 2691 Fredericktown, Ohio

FOR SALE

- 2 Bucyrus-Erie, model 54B dragline, Buda diesel; 90' boom.
- 2 Marion, model 40A combination shovel and dragline Caterpillar diesel engine, 80' boom.
- 2 Marion model 111 4 yd. drag (1950) Caterpillar diesel engine, 100' boom.
- 1 Bucyrus-Erie 5W Walker shovel and drag; Cat. D397 diesel, 130' boom.
- 1 Bay City model 65-1 1/4 yd. shovel; diesel powered.
- 1 Lorain Motorcrane, model MC-254 (1952).
- 2 Manitowoc, model 3000 B shovels.
- 1 Manitowoc, model 3500 Hi-Lift shovel.
- 1 Manitowoc, model 4500 (1950) drag.
- 1 P & H model 255A shovel and crane.
- 1 P & H model 155A shovel.
- 1 N.W. model 25 shovel front.
- 2 Erie 2 1/2 yd. clam digging buckets (new).
- 1 Amsco 1 yd. shovel dipper - fits Lorain 41.
- 1 Caterpillar D7 - 3T1500 Series.

R. S. BLACK

16 S. Bellegrove Road
Baltimore 28, Md.
Telephone Cantonville 0569

TANDEM BOGIE AXLES

**NEAR NEW ASSEMBLIES
REMOVED FROM ARMY TRUCKS**

International M5H6 Walking Beam Type - 353 Timken Type - GMC Banjo Type and Split Timken Type. Available in "2 Axle Drives" or with one axle. Priced from \$350.00 and up.

**PARTS FOR ALL HEAVY-DUTY
AND MILITARY VEHICLES**

Half Tracks - Scout Cars - Weasels
Jeeps - Army Tractors

Winches - Hoists - Tandem Axles - Drive Shafts - Gears - Wheels - Compressors - Electric Units - Carburetion - Brakes - Transfer Case Assemblies.

Manufacturers and Distributors of nearly all standard brands of parts and major assemblies.

**NORTHWESTERN
AUTO PARTS CO.**
834 North Seventh Street
MINNEAPOLIS, MINNESOTA

FOR SALE

- 1—Northwest 3/4 yd. 25 Backhoe Shovel 10 yrs. old with Diesel Motor and 1 Lorain 41 Model 3 1/2 years old. Backhoe with Diesel G.M.

Price Lorain\$12,000

Northwest 3/4 yd.....\$ 8,000

FARINO EXCAVATING CO., INC.
18030 Rialto Street
Melvindale, Michigan

FOR SALE

LINK BELT, Model K360, 1 1/2 Yd. Diesel Crane, 65' Boom.

BAY CITY CRANE, Model 62, 1 1/4 Yd. Gas., 35' Boom.

UNIT CRANE Model 1020A (2), 3/4 Yd., 45' Boom.

The above cranes have fairleads and taglines. Each crane has magnet and generator. Will sell without magnet or generator.

GEORGE STEINER CO.

1220 W. Lake St. Ph.: TAYLOR 9-0589
CHICAGO 7, ILLINOIS

QUALITY USED EQUIPMENT • READY TO WORK • REASONABLY PRICED

34E KOEHRING PAVER—Diesel—Rebuilt. Template puller; 600 gal. tank.

34E RANSOME PAVER—Diesel—Rebuilt.

200 PARSONS TRENCHER—Digs 15-inch wide, 6-ft. deep.

GALION 101 Grader, Cab—Lights—Scarifier—Rebuilt.

OLIVER MODEL DD 61 DHP—Angledozer—Diesel—Rebuilt.

D4 CATERPILLAR angledozer.

OLIVER AGH FRONT END LOADER— $\frac{3}{4}$ yd. on rubber, Backfill Blade Attachment.

CLYDE Tandem Roller, 3-5 Ton.

1801 Erie Blvd. E.
Syracuse, N. Y.
Phone: 72-3331

ATLANTIC TUG and EQUIPMENT
Company Inc.

Oriskany Blvd.
Whitesboro, N. Y.
Phone: Utica 6391

FOR SALE

Chav. dump truck, Thornton drive, 8 yd. box by Gar Wood; tires very good—\$2,000.00. Box can be bought separately.

Gardner-Denver 160 cfm. water cooled portable compressor—\$1,890.00.

Gordon Smith 70 cfm. portable compressor, engine Chrysler industrial, new—\$1,450.00.

Davey 60 cfm. portable compressor—clutch—\$1,250.00.

LeRoi 105 cfm. portable compressor—\$1,800.00.

Worthington 315 cfm. Mounted on GMC 4x6 Army truck—\$4,900.00. Gas-Hercules engine rebuilt.

Ingersoll-Rand K-500 cfm. Mounted on GMC 4x6 Army truck—\$7,000.00. Diesel engine.

CMC bituminous mixer; skip loaded extension from dock to ground—\$1,500.00. Powered by Wisconsin four cylinder engine; heater type drum.

K35 Int. Truck Lineman's Utility Body and 70 cfm. Gordon Smith Compressor Mid. \$4000.00.

All equipment can be inspected at 210 $\frac{1}{2}$ N. Madison St., Rockford, Ill.

All equipment overhauled and guaranteed. Misc. parts and replacement kits on your shelves go with each unit sold.

GUNITE CONTRACTOR
210 $\frac{1}{2}$ N. Madison, Rockford, Ill. Ph. 5-3588

SURPLUS EQUIPMENT FOR SALE

1—Lorain Model L-50-I Crane w/complete backhoe attachments and shovel front.

1—LS-90 Link-Belt Crane (Gasoline).

1—LS-90 Link-Belt Crane (Diesel).

1—HC-51 Link-Belt Speeder Truck Crane.

1—Complete Asphalt Distribution Rig.

1—Jaeger 11-B, 4 wheel, Rubber tired, 2 Sack Concrete Mixer.

1—W-9 International Farm Tractor.

1—Model No. 18 Caterpillar Ripper.

1—T-64 Tulsa Towing Winch, complete for D-6 Tractor.

1—Garwood 11 yd. Carryall.

Prices and complete descriptions on above given upon request.

SMITH & ROBINSON
Grading Contractors
401 South Cedar Phone 1725
Borger, Texas

FOR SALE

1—Tire, 21.00x24, 20-ply, 90% new, \$500.00.
2—9G D-7 Cals, with double drum units and dozers, \$4500.00 each.

1—International K8 tandem with 450 engine, has winch and is oil field rigged, \$3000.00.

1—3000 gal. 4-compartment single axle tank trailer, \$950.00.

1—6-8 yard Continental hydraulic scraper with BG unit, \$995.00.

1—2-inch Roper gear fuel pump, 300 lb. per sq. in., nearly new, \$150.00.

1—2-inch Yale & Towne fuel transfer pump, \$75.00.

2—Tournapull Model D Roadsters, 18.00x25 drivers, very good condition, \$8500.00 each.

We will welcome inquiries on delivery cost or terms on this equipment

BARKER BROS., INC.
SHERIDAN, WYOMING

EUCLIDS FOR SALE

5—Rebuilt 15 ton Rear Dumps
model 49FD-GM-190 H.P. Engine.

3—13 yd. 20 Ton Bottom Dumps,
200 H.P. Cummins HN Engines.
As is or rebuilt.

1—Euclid Loader - Model 5 BV
Cummins HB Engine, 35' Conveyor, as is St. Louis.

\$10,000.00

1—13 yd. 20 Ton Model 70FDT-
89W Bottom Dump - 200 HP
Cummins Engine - Used 5
Months - Tires and General
Condition, Excellent.

\$19,000.00

All machines our lot St. Louis

Call or Write:

EUCLID SALES & SERVICE INC.

5231 MANCHESTER AVENUE
PHONE: HILAND 3417
ST. LOUIS, MISSOURI

FOR SALE

Crushing Plant Complete

New July 1952—Ready to Operate
Diesel Powered—

Makes all size Aggregates

Primary 2540 Cedar Rapids

AAAA Portable with Feeder

Secondary 37 $\frac{1}{2}$ Kennedy Gyratory

Triple Deck 4'x12' Screens

Double Deck 4'x12' Screens

4 Bins and 4 Conveyors

complete with Supports & Walkways

WILLIS CONSTRUCTION
Branchville, New Jersey

QUONSET
STEEL BUILDINGS

Sizes 40x100 and 20x48 feet

Several of both knocked down for shipment. Located 101 and 101-A junction. In good condition. Invite your inspection.

H. L. HARVEY
P. O. Box 493, Oxnard, Calif.
Phones 69211 and 69610

FOR RENT
OR SALE

will consider rental purchase

Lorain Model 40 Shovel and Dragline— $\frac{3}{4}$ yd. with buckets—Can furnish backhoe attachment

N.W. Model 25 Shovel attachment

Barber-Greene 879A Finishing Machine, Rebuilt

1—New Kohler 2000 watt Light Plant

2—N.W. 80-D Dragline near new

1—Caterpillar D-7 with angledozer, like new

1—New N.W. 25 Dragline

Mack Model LJT Tractor

LaCrosse 30 ton tandem trailer

Caterpillar D-6 sideboom

Caterpillar D-8 with angledozer or stump

N.W. Model 6 Dragline Shovel

Backhoe Combination

International TD 18 with BE Angledozer

International TD 9 with BE Bulldozer

Garwood 8 Yard Hydraulic Scraper

Bucyrus-Erie 8 Yard Cable Scraper

2—N.W. Model 6 Shovel attachments

Buda Model HBJ Earth Drill

Hendrix 2 $\frac{1}{2}$ yard Dragline Bucket

1—N.W. Model 25 Backhoe attachments

Allis-Chalmers Model L gasoline tractor

1—Koehring 605 Shovel or Dragline

All in Good Working Condition

AL J. GOODMAN

Dealer In

Used Construction Equipment

Day Phone 3-6456

P. O. Box 263

ASHEVILLE, N. C.

Nite Phone 5668

FOR SALE

Transports of 5500, 6000, and 8000-gallon capacity, for sale at a low price, or will trade for tandem dump trailers. Contact us immediately if you want to buy any of these transports or trade tandem dump trailers. Contact

KENNETH C. KOCH
CHILLICOTHE, ILLINOIS

Save On FUEL INJECTORS

- For All General Motors Diesel-Powered Equipment, including G.M.C. Trucks, Euclid, Lorain, Koehring, etc.
- Fully Warranted to YOUR Entire Satisfaction.
- Price Includes Replacement of Plunger and Bushing Assembly, when necessary.
- Send Us Your Order and Old Injectors Today, or Write for Complete Details.

MODEL 71 INJECTORS, ANY OUTPUT

AMERICAN DIESEL SERVICE

3495-C West 140th Street

Only
\$12.50
Each
and Old Injector
Cleveland 11, Ohio

FOR SALE

Koehring 34E Dual Drum Paver
37-B Bucyrus-Erie Crane-Dragline
Lima 34 Paymaster Crane-Dragline
Shovel

Lorain L50 Crane-Dragline

2 Caterpillar No. 12 Graders

A-1 Barber-Greene Model 848
Heavy Duty Asphalt Plant Con-
sisting Of:

Model 848 Mixer

Model 880 Hot Elevator

Fines Hopper

Model 880 Elevator 27'

Model 866 Gradation Unit

Model 837 Single Drum Dryer

Model 851 Dust Collector

Model 881 Cold Elevator

Model 813 Reciprocation

Feeder

Caterpillar D4600 Engine

Caterpillar D13000 Engine

Hydraulic Hopper

Etnyre 1250 Gallon Distributor on
Mack Truck

Hopkins Low Pressure Burners

1946 Mack LF Diesel Tractor

1947 Fontainne Trailer 25 Ton

United Southern Contractors, Inc.

GREENVILLE, SOUTH CAROLINA

P. O. BOX 1152

PH. 2-1846

FOR SALE

1—Northwest model 95 crane/
dragline with 95' boom, 15' jib,
Murphy-Diesel engine, excel-
lent condition.

1—Byers model 83 ¾ yd. crane/
backhoe combination, recently
overhauled.

1—TD-24 tractor, new 1949, work-
ing condition.

1—1946 Lorain MC-414 Truck
Moto-Crane.

All available immediately and all
priced reasonably.

D. W. Winkelman Co., Inc.

P. O. Box 1232 - Phone 9-6605

Syracuse, New York

USED PAVERS FOR SALE

**34E Dual and
Single Drum Pavers**

Available for inspection in stock
for prompt delivery

DRAVO-DOYLE CO.

2601 Preble Ave., PITTSBURGH 33, PA.

ALLegheny 1-8800



FOR SALE

MICHIGAN ¾ Yd. Model T6D
Truck Shovel, Crane & Back-
hoe. Price\$7,500.00

ANDERSON EQUIPMENT CO.

Box 1737, Pittsburgh 30, Penna.

Phone: LEhigh 1-6020

FOR SALE

1—Ford tractor, dual wheels, complete with
backhoe and heavy duty hydraulic load-
er.

1—American No. 8 road patrol, A-1 con-
dition.

1—Jaeger horizontal transit mixer 3-4½
yd. Good shape, \$450.00.

1—Challenge 3 yd. Hidump Mixer, A-1
shape.

1—1949 Chevrolet dump truck with new
Anthony bed.

SILVER BROTHERS

Hoopeston, Illinois - Phone 875

FOR SALE

WAYNE ½ yd. Wagon Crane-
Shovel-Hoe Combination.

\$10,000.00

ANDERSON EQUIPMENT CO.

Box 1737, Pittsburgh 30, Penna.

Phone: LEhigh 1-6020

STORAGE TANKS FOR SALE

8,000 and 10,000 gallon, with and without
coils, also other sizes available near Pitts-
burgh, Penna.

Write, phone or wire

BRIGGS & TURIVAS

Imperial, Penna.

FOR SALE

**20-ton Locomotive Steam
Crane**

**10-ton General Mobile
Gas Crane**

**25-ton Electric Gantry
Crane**

**10-ton MC-3 Lorain Truck
Crane**

**300 W Diesel Generator
230V DC**

**315 CFM and 1500 CFM
Air Compressors**

Call or Write

G. T. SMITH

Welding Shipyard

Box 749, 9801 Hampton Blvd.

Norfolk, Virginia—Phone 46443

FOR SALE

Small Money Making Asphalt
Paving Business

\$10,000 in Contracts

Equipment & Help

Terms

DE LANEY PAVING COMPANY

4300 E. Mississippi Ave.

Denver, Colo.

FOR SALE

1946 Model HC-70 Link-Belt
Speeder 20-Ton Truck Crane with
80 ft. boom, 40 ft. jib and Dolly
Wheels. A-1 condition. F.O.B.
Albany, N. Y.—\$17,500.

SLADE TRACTOR CO.

924 Broadway

Albany, N. Y.

Phone: 3-2189

DEPENDABLE USED MACHINES

Lorain 30 dragline, wide cuts

P&H ½ yd. crane

Gruendler 10x36 r.b. crusher

20x40 port. belt conveyor

Eagle cinder crusher

3 yd. Dumpster

TRACTOR & EQUIPMENT CO.

10032 Southwest Highway Oak Lawn, Illinois

ASPHALT & OIL TANKS

IN MO.—TEX.—N. Y.—FLA.

33 - 8000 & 10,000 GAL. R.R.

TANK CAR TANKS

6 HORIZ. 18,000 & 20,000 GAL.

9 VERT. 18,000, 42,000, 120,000 GAL.

LESTAN CORP.

ROSEMONT, PA.



The Most Valuable Assemblage of Contractors' Machinery
Ever Offered at Public Sale



AT AUCTION

Earth Moving and Construction

CONTRACTORS' MACHINERY

Used in Building the Downsville, New York, Dam—Board of Water Supply Contract 401

On Route 30, Downsville, N. Y.

70 Miles East of Binghamton

TUESDAY, APRIL 28, 1953, at 10 A.M. on the premises

EUCLID BOTTOM DUMPS

- 34 Model 71FDT with 89W Wagons, 13 cu. yd. capy., 1951
- 10 Model 67FDT with 58W Wagons, 13 cu. yd. capy., 1950
- 8 Model 38FDT with 89W Wagons, 13 cu. yd. capy., 1950
- 34 Model 43FDT with 58W Wagons, 13 cu. yd. capy., 1946-1950

EUCLID END DUMPS

- 9 Model 8TD with 56Y Bodies, 16.8 cu. yds., 1950
- 5 Model 49FD with 48BY Bodies, 12 cu.yds., 1947
- 2 Model 49FD with 12BY Bodies, 12 cu. yds., 1947

EUCLID LOADERS

- 2 Model 9BV with GM Diesel Engines, 1951
- Model 109W Dolly for 9BV Loaders, 1951
- Model No. 38V with a Cummins Diesel Engine, 1946

SHOVELS and CRANES

- 2 No. 1055 P & H 3 cu. yd. Shovels with Buda Diesel Engines, 1948
- No. 54B Bucyrus-Erie 2½ yd. Shovel, Buda Lanova Powered, 1947
- Day Smith Luger Crane, Type 100
- Oshkosh Tractor Crane Model TE with Gar Wood Crane

EARTH PROCESSING PLANTS

- Robins "Grizzly" Pervious Earth Treatment Plant, capy. 2600 cu. yds. (3500 tons) per hour
- Robins "Grizzly" Impervious Earth Treatment Plant, capy. 1350 cu. yds. (1750 tons) per hour
- Robins H D Scalper with LeRoi Gasoline Engine, 1950

TRACTORS and DOZERS

- 2 Allis Chalmers Model 8D19H with Bulldozers and Le Tourneau Power Control Units, 1948
- 3 International Model TD24 Tractors, 1951
- 15 Caterpillar Model DB, Series 20 and 8R Tractor Dozers with Power Control Units

GRADERS

- Allis Chalmers Model HD-3, WGM Diesel Attachment and Scarifier, 1947
- 2 Caterpillar No. 12 Diesel Powered with Scarifier Attachment, 1946

TOURNAPULLS

- 4 Le Tourneau Model CIH with Cummins Diesel Engines, 1946

MISCELLANEOUS

- K-30 Rooter
- 3 Rock Rakes
- 3 Rome Disc Harrows
- 16 Sheepsfoot Rollers—assorted sizes and makes
- Jacques Model K Hydraulic Auger
- 22 Kohler Lighting Plants from 1½ to 5 KW Capacity
- 4 Worthington 1500GPM 2-Stage Turbine Deep Well Type Pumps (2 Diesel Driven and 2 Electric Driven)
- Tunnel Forms—30 ft. Unit. Non Telescopic Straddle Type Traveler
- Blaw-Knox Steel Panel Concrete Forms—approx. 20 tons
- Lambert Elec. 3-ton Mine Hoist with 100 H.P. Westinghouse Motor
- 24 Atlantic Transformers from 15 to 100 KVA
- 9 New 3 to 25 H.P. Electric Motors
- 1950 Plymouth 4-Door Sedan
- 1948 Reo 2-ton Platform Truck

Sale By Order of

Bianchi, Central, Munroe-Langstroth, Rugo—A Joint Venture

Owners

The equipment may be inspected any week day during business hours from April 14th to day of sale—other inspections by appointment with the Auctioneers.

A Profusely illustrated Descriptive Brochure is being prepared and will be mailed upon application to

SAMUEL T. FREEMAN & CO.

Auctioneers

1808-10 CHESTNUT STREET, PHILADELPHIA 3, PA.

80 FEDERAL ST., BOSTON 10, MASS.

Immediate Delivery

A-C Model HD14 Tractor w/ angle dozer.

A-C Model HD10W Tractor w/ angle dozer.

A-C Model HD7W Tractor w/ angle dozer.

A-C Model L Tractor w/ bulldozer.

A-C Model WK Tractor.

A-C Model AD-3 motor patrol w/ cab & scarifier.

International TD-6 w/ hyd. bulldozer. Clean.

International T-40. Good condition.

International TD35 Tractor.

Caterpillar D-6 Tractor A1 w/ Model 25 P.C.U. & C60 Scraper.

A-C Model D Motor Patrol.

Adams Model 414 Motor Patrol.

A-C Model B wheel tractor w/ mower.

LeTourneau Y-12 Scraper.

Northwest Model 18 Dragline.

Buckeye Model 402 Ditcher.

Gar Wood Model 25 Scraper.

1—Hough ¾ yd. Payloader. Excellent condition.

1—Bros Model SG-55 skid mounted steam generator.

Slusser-McLean 8-10 yd. cable scraper. Slightly used.

1—Novo traffic line marker.

ILLINOIS ROAD EQUIPMENT CO.

1310 E. Jefferson St. Springfield, Ill.

Phone 2-7709

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

229 pcs. 60 ft. Carn. M-118-Illinois
160 pcs. 33-30 ft. Inland I-22-Kansas
74 pcs. 33-32 ft. Carn. M-116-Tennessee
301 pcs. 30-26 ft. Beth. DP-2-Texas
183 pcs. 21-17 ft. Carn. M-115-Virginia
Other lengths & sections used & now at other locations in United States for rent.

We have Nation-wide reputation for effecting QUICKEST SHIPMENTS

All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt

Regardless of location of job. Wire, Write or Phone
MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474, St. Louis, Mo.

P&H SHOVEL & DRAGLINE

Model 1055-LC Combination. Shovel Boom 45-ft., Sticks 36-ft., 2½ yd. Dipper, Dragline Boom 80-ft. with two (2) 4-yd. Buckets, Buda Diesel Motor. Price.....\$65,000.00

ANDERSON EQUIPMENT CO.

Box 1737, Pittsburgh 30, Penna.

Phone: LEhigh 1-6020

COMPLETE STATIONARY CRUSHING PLANT

In excellent overall condition—3 years old—all electric operated.

32" x 40" Universal Pettibone Mulliken Impact Crusher with 30" x 12' feeder, 5' x 15' triple deck Simplicity screen, 24" x 110' feed conveyor—24" x 60' portable conveyor—3 10' x 10' x 4' portable bins—18" x 100' return conveyor.

This high capacity plant in A1 shape—now operating—available in 30 to 60 days. Can be inspected at your convenience.

JAMES W. BELL CO., INC.

1720 1 AVE. N. E.

CEDAR RAPIDS, IOWA

P. O. BOX 550

FOR SALE

1—Bucyrus-Erie Model 22-B ¾ yd. Crawler Dragline 1952 Model. Excellent condition.

1—Caterpillar Tractor D7 with angledozer, late model.

1—Caterpillar Tractor D4 with angledozer, late model.

1—Caterpillar Tractor D6 with angledozer, 9U series.

2—Model D Caterpillar Tractors, with angledozers.

1—Allis Chalmers Tractor HD-7.

1—Insley Model K-12, ½ yd. diesel crawler crane, late model.

1—Lorain Model 80, 1¾ yd. Diesel Crawler Crane.

1—Lorain Model 50 Diesel Crawler Shovel, new 1951.

1—Caterpillar #12 motor grader, AT Series, late model, only two years old. Guaranteed A-1 condition.

1—½ yd. Unit 1951 Model Crawler Shovel.

1—Lorain Model 820 Diesel Crawler Shovel.

1—Quickway Model J truck crane combination dragline and backhoe and ½ yard bucket. Mounted on Autocar FWD truck. Both excellent condition. Sacrifice for quick sale.

1—Link Belt Speeder, Model LS-50, ½ yd. Combination Backhoe, Dragline and Clamshell, new 1950, with dragline, clamshell and concrete Buckets and Fairleads, 60' boom, Buda gas engine.

1—500 foot Ingersoll Rand Diesel Air Compressors, late models, mounted on rubber tires.

1—Lorain TL-20 Self Propelled Shovel.

1—Lorain TL-20 Truck crane, late model, 20 ton cap.

1—Lorain M.C.—414 Truck crane, late model, 20 ton cap.

1—Cat. D8 Tractor with angledozer, late model.

All above equipment in good condition.

"Try us first, for good, dependable equipment at the right price."

Phone, Write or Wire

Southern Machinery & Equipment Co.

P. O. Box 2305, Phone: Norfolk 51107
NORFOLK 1, VA.

WOOLRIDGE TERRA COBRAS

Two (2) 15 ½ Yd. Model T.C.

Cummins Diesel Engines

New November 1948

Price for Both—\$30,000.00

ANDERSON EQUIPMENT CO.

Box 1737, Pittsburgh 30, Penna.

Phone: LEhigh 1-6020

GM-6-71 DIESEL ENGINES For Allis Chalmers Dozer

NEW SURPLUS

\$1450

AND YOUR OLD ENGINE

Forbes Motor Co.

U. S. Route 22 at Monroeville
Turtle Creek, Pennsylvania
Phone VA. 4-0100

WANT TO TRADE FOR

Late Model 25-30 ton tandem type lo-boy 20 inch wheels and/or rear cat crane. Have to trade 2 International 1951 trucks L-174 with 5 yd. end dumps. LIKE NEW. Four 5 yd. end dump bodies. VERY GOOD. Army Half Track Crane. VERY GOOD. 3 insulated 1250 gal. oil or water tanks. FAIR.

Box 1101, Roads & Streets
22 W. Maple St., Chicago 10, Ill.

Eucild Trucks 15 Ton—22 Ton End Dump—15 Yd. and 25 Yd. Bottom Dumps—12—25 Yd. Bot. Dump without tractors.

4—Elec. Std. Ga. Dump Car locomotives—600 volt with 17—std. ga. air dump cars—25,000 lb. cap. 130 Cu. Ft. level, with all elec. equip. Goodman 10 Ton Mine Loco.—250 Volt 36" Gauge. Ottumwa Mine Hoist—1½" Hope—200 H.P. Motor—525 H.P.M. complete.

Jaw Crushers 36" x 48" Nordberg—36" x 48" Farrel—60" x 48"—42" x 48"—42" x 30"—24" x 36"—18" x 36"—15" x 36" Symons Cone 5½"—4"—3"—2"—30 x 40 Dixie hammer mill—54" Traylor Type T—42" McCully—48" Gyrosphere.

Shovels—Roll Crushers—Rod Mills—Ball Mills—Rotary Kline—Dryers—Log Washers—Classifiers—Mine Hoists—Transformers—Motors—Gravel Plants—Blast Hole Drills—27T—20T—42T—Generator sets—Drag Lines. 2—25' A.C. Log Washers.

STANLEY B. TROYER

Theatre Bldg. Tel. 500 Crosby, Minnesota

SHOVEL

MARION 2-Yd. Model 392

36-ft. Boom, 27-ft. Stick

Serial No. 7391

Price\$25,000.00

ANDERSON EQUIPMENT CO.

Box 1737, Pittsburgh 30, Penna.

Phone: LEhigh 1-6020

KOEHRING DUMPTONS. Current model WD60. GMC Diesel 6-8 cu. yd. Reconditioned. Repainted. Ready to go. \$4250.00. (3 located our yard. 3 Boise, Idaho.)

LIMA #802 Diesel Dragline #2432. Rebuilt 70' boom, 3 cu. yd. bucket. Long wide tracks. \$25,000.00. Rental \$2000.00. monthly appl. purchase price. Real bargain. Our yard.

KOEHRING #605 Dragline #C5283. Long wide crawlers. Cat. D13000. Hi-gantry. Excellent. \$26,500.00.

UNIT #1020 ¾ cu. yd. Shovel. New 1948. Good. \$3000.00.

KIESLER 1½ cu. yd. Re-handling clam bucket. Wt. 3000 lb. Like new. \$800.00.

PILE HAMMER with cap. 2000 lb. 25 ft. steel leads. Like new. \$550.00.

TD-14 HOUGH Frontend loader. Only run 255 hours. Guaranteed like new. \$11,000.00.

GARDNER-DENVER WBK 500 ft. Portable Pneumatic Tired Compressor D-13000 Cat. Diesel. Rebuilt by Caterpillar dealer at cost of \$2000.00—\$6000.00. Rental purchase. Also rebuilt wagon drills.

SCRAMM 315 Diesel (Cat. D 13000) Portable. At. \$3250.00.

INGERBOLL-RAND 215 Diesel. Portable. Rebuilt. \$2250.00. Others.

GALION 8-12 ton Tandem Roller. UD-9 Diesel. 1949. At. \$3750.00.

BLAW-KNOX BCP-400 bbl. Cement Plant & P-3100 100 ton Batch Plant. 1 year old. \$12,000.00.

JOHNSON CEMENT PLANT w/300 bbl. overhead and 400 bbl. ground silos, batchers, elevators, etc. \$4250.00.

GORMAN-RUPP 4" Jetting Pump. Chrysler Power. Portable pneumatic tired trailer. Rebuilt. Like new. \$1250.00. Rental purchase.

UNIVERSAL 293Q. "PACEMAKER" Portable Crushing & Screening Plant 18" x 24". RB. Jaw. 23 Hammermill. Apron Feeder, screen motor lift. Conveyors. Tandem axle. Pneumatic tired. New 1948. Rebuilt. Bargain. \$17,500.00.

PIONEER 24" x 36" RB. Primary Portable w/feeder. Cat. Diesel. Conveyor, tandem pneumatic tired trailer. Rebuilt Crusher guaranteed like new. \$17,500.00. Also secondary portable.

Wenzel Machinery Rental & Sales Co.
2136 Jefferson St. Kansas City, Mo.
Tel. Harrison 0021

LIQUIDATION

Equipment For Sale

LIMA—¾ yd. dragline with ¾ yd. Paige bucket.

AMERICAN—¾ yd. diesel dragline.

AMERICAN—¾ yd. diesel dragline and shovel attachments.

BUCYRUS-ERIE—20-B ¾ yd. dragline-shovel and backhoe.

CATERPILLAR D-4 with LaPlante Choate dozer and Hyster winch.

BROS—double drum sheepfoot roller.

JAEGER—mixer, 115-A, pneumatic tires.

CATERPILLAR—D-2

MISCELLANEOUS building and construction equipment.

All can be seen at:

Walter W. McGee Company

1397 Laurel Avenue
St. Paul, Minnesota
Tel: NEster 2244

BARBER-GREENE LOADERS

82A—3 yd.; 552—2 yd.; 522—
1 ½ yd. Haiss 75C—3 yd.

BARBER-GREENE EBERSOL

9 x 40 Two Stage Jaw Crusher

CEDARAPIDS

9 x 36 JAW CRUSHER

THE McLEAN COMPANY

3525 Lakeside Ave., Cleveland 14, Ohio

FOR SALE

Construction and Earthmoving Equipment Available at Liquidation Prices

- 1—Model 43B, Bucyrus-Erie Comb. Shovel & Dragline
- 3—Model Super C LeTourneau Tournapulls
- 1—Kenworth Diesel Tractor with Low-Bed
- 1—GM Tractor Model AC 854, New Engine
- 1—Model DSI Wagner Scoopmobile 1 ½ yd. w/dozer
- 1—Cedar-Rapids Master Tandem Portable Crushing Plant with crusher rolls, conveyors and powered by Cat D-13000 Power Unit
- 1—Murphy 50 Ton Portable Scale 9' x 34'
- 1—Caterpillar Model 12 Motor Patrol 9KSER
- 1—Etnyre Distributor Model FX-400D on INT. DS35 Truck
- 2—Cleaver Brooks Pumping Boosters Model 2

All above equipment can be inspected by contacting our representative at Room 209 Hidalgo Hotel, Lordsburg, N. M., phone 108 or by contacting our main office.

DIESEL CONSTRUCTION EQUIPMENT CO., INC.

5050 Market Street Phone M4-3149

San Diego 2, Calif.

FOR SALE

½ yard Erie Clam shell
16S Jaeger mixer, rubber tired
1-sack Koehring Dandie Mixer, rubber tired
150' Tubular tower, rent or sale
Reconditioned, ready to go.
Priced to sell.

Other Equipment Available

DOUBLE J MANUFACTURING CO., INC.

1141 So. 12th St. P. O. Box 135
Kansas City, Kansas
Phone: Finley 4400

FOR SALE

Locomotive Type Boiler

Shell 58" in diameter, overall length 16' 3"
tubes. Subject to prior sale or disposition.
Write Box 1109, Roads & Streets
22 W. Maple St., Chicago 10, Ill.

300 TPH DIESEL PORTABLE SCREENING & CRUSHING PLANT

32" x 40" Primary Crusher. 12' Feeder & Murphy Diesel. 18" x 36" Secondary Crusher. 40" x 24" Rolls. 4' x 14" D.D. Vib. Screen, G.M. Diesel. All Mounted Pneu. Tires. Complete Bins, Elevators, Conveyors. Mfg. by Austin Western.

J. C. SEALY

60 E. 42nd St., New York 17, N. Y.

FOR SALE

1—Adnun Blacktop Paver, Serial No. 1300	\$ 6,850
1—Adnun Blacktop Paver, Serial No. 1442	5,625
1—Buffalo-Springfield 3-wheel, 10 ton gasoline roller	1,850
1—Buffalo-Springfield 3-wheel, 10 ton gasoline roller	2,225
1—Buffalo-Springfield 3-wheel, 10 ton gasoline roller	2,225
1—Galion 3½-5 ton roller	1,250
1—Austin-Western 8-10½ ton tandem roller, Serial No. T-2448	4,375
1—Gledhill Road Drag	440
1—450 Gal. Littleford Pressure Distributor, Trailer Mounted	625
1—Barber-Greene Model 44-C Ditcher, completely rebuilt including new engine	11,250

All equipment in excellent working condition and reasonably priced. Equipment may be inspected at yard.

BLACK TOP PAVING CO.

Oakland Avenue Washington, Pa.

AN AUCTION CONSTRUCTION EQUIPMENT

ST. LOUIS, MISSOURI MONDAY, MAY 4, 10:00 A.M.

LOCATION: 1/2 MILE NORTH OF THE ST. LOUIS AIRPORT

EACH PIECE POSITIVELY SELLS TO THE HIGHEST BIDDER WITHOUT LIMIT, RESERVATION or MINIMUM

International TD-24 tractors; International TD-14 tractors; International TD-9 tractors; International T-9 tractors; International TD-6's and T-6 tractors; International TD-18 tractor; IHC T-40; Allis Chalmers tractors; CATERPILLAR tractors; IHC wheel tractors; most of the tractors are equipped with either dozers, dozershovels or front end loaders; power units; Hough payloaders; Adams 511 patrols; Caterpillar patrols; Trojan patrols; LaPlante Choate, Continental and Adams scrapers; winches; Smith Hi-dump truck concrete mixers; many compressors of different sizes and makes; many pieces of pneumatic equipment; back filler; front end loaders; many sizes of centrifugal pumps; concrete mixers; chain saws; drills; concrete hoppers, and many other pieces. **WIRE OR CALL THE AUCTIONEERS FOR COMPLETE SALE BILL!! EVERYTHING SELLS TO THE HIGHEST BIDDERS WITHOUT LIMIT, RESERVATION OR MINIMUM!!**

Terms: Cashier's check, bank draft or cash. Only upon letter of bank credit will personal checks be accepted. Immediate possession of equipment when aforementioned payment made.

ST. LOUIS EQUIPMENT DEALERS, OWNERS

FORKE BROTHERS
the Auctioneers

321 Sharp Bldg. **Lincoln, Nebraska** Phone 2-7045

— EQUIPMENT AUCTION LEADERSHIP SINCE 1921 —

Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

CONTRACTORS MACHINERY CO.

2851 Southwest Blvd. Kansas City 8, Mo.
Phone Valentine 4748

FOR SALE

Transit 2 Yard
Mixer Trucks

Mixer only or mounted

1—Rapid Paving Breaker;
Model M; Serial No. 209

TRIANGLE CONSTRUCTION CO.
Carbondale, Illinois

Offered Subject Prior Sale

Marion 40-A Lift Shovel \$20,000.00
Lorain 78 Comb 1 1/2 yd. shovel,
dragline \$15,000.00
P & H Shovel 1 1/4 yd. Comp. rebuilt.
All new cabs, gear, etc. \$7,500.00
Machines in good cond. ready to work

HAROLD W. HOOKER
ELLWOOD CITY, PA. PHONE 1889

FOR SALE

C. S. Johnson Concrete Plant

Completely Automatic, consisting of 3-3 cu. yd. Koehring Tilting Mixers, six compartment bin, 500 tons aggregate, 500 bbl cement storage tank, 2700 bbl cement silo, 2 I.R. Pre-2, 20x12x14 Air Compressors, York Corp. Refrigeration System, 1 Cat. D-397, 1 Cat. D-386 Generator Sets with switch boards.

**IN ADDITION TO ABOVE PLANT
WE ALSO HAVE FOR SALE**

Concrete buckets, I.R. Wagon Drills, miscellaneous air tools, pumps, dump trucks and 1 D-6 Caterpillar Bulldozer.

Write phone or telegraph
Mr. R. C. Hutchinson, Ashland City, Tenn.
Phone No. 211.

**STEVEN BROS. &
THE MILLER-HUTCHINSON CO., INC.
and T. L. JAMES & CO., INC.
JOINT CONTRACTORS**

CHEATHAM LOCK ASHLAND CITY, TENNESSEE

WANTED TANDEM ROLLER

8 to 12 Ton Capacity

ANDERSON EQUIPMENT CO.
Box 1737 Pittsburgh 30, Pennsylvania

**MAINCO
DISTANCE
MEASURING
WHEEL**



**ONE
MAN
and a MAINCO
can beat
2 MEN WITH A CHAIN**

Send for descriptive folder today

THE MAINTENANCE CO., INC.
Dep't. D, 453 W. 42nd St., New York 18, N. Y.

**MIXERMOBILE M-7—2 CU. YD.
FOR SALE—Excellent condition**

In use since June 1952—Lease purchase
agreement considered.

DOUGLASS CONSTRUCTION COMPANY
Alken, S. C. Phone 9-2614

(Continued from page 127)

30

Light weight one-man chain saw

A 19 in. blade light weight one-man chain saw, developed by St-unik Equipment Co., Coateville, Pa., weighs only 28 lb. Special features include for the new saw includes the substitution of a minimum alloy for steel where possible in an effort to



Strunk Chain Saw

achieve lightness without sacrificing strength. A special balance feature lets the light weight saw "walk through the cut" without extra pressure by the user.

Circle the number of this item on the post card and get additional information.

31

Sewer joint compound unaffected by acids

Slip seal sewer joint compound developed by Carey research chemists has been added to the products manufactured by the Phillip Carey Mfg. Co., Dept. S5, Cincinnati 15, O. The compound is a hot-poured, mineral stabilized, asphaltic material used in the production of precast joints on sewer tiles. This compound has a high resistance to slump when precast joints are exposed in storage to the hot summer sun. Carey's Compound is unaffected by 5% solutions of sodium hydroxide and hydrochloric acid. It passes the National Committee Pipe Manufacturers Institute performance Standard requirement for resistance to low stress penetration.

Circle the number of this item on the post card and get additional information.

32

Popular price chrome plated steel tapes

A new, popular-priced line of chrome plated steel tapes is the latest development of Justus Roe & Sons, Inc., Patchogue, N. Y. The chrome plating, produced by an exclusive process, creates a blue-white background which contrasts strongly with the tape markings and greatly improves their legibility. While the plating provides the whiteness of a soft-painted tape, it gives



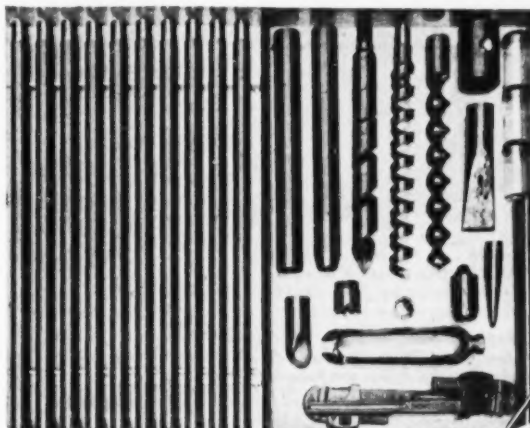
Redhead Chrome Plated Steel Tape

the added advantages inherent in a tough and practically permanent surface. Tapes are available with loop handle or retractable hook handle. There is a range of 25, 50, 75 and 100 ft. tapes; feet in inches and eighths or in tenths and hundredths.

Circle the number of this item on the post card and get additional information.

Acker Soil Sampling Kit!

Everything you need for accurate sub-surface information



● PORTABLE

The Acker Kit is compact and light enough to be carried in your car.

● VERSATILE

12 different "all-purpose" earth and soil tools that will recover samples from practically any material.

● HANDY

All tools fit into a sturdy steel box, where they are always available for instant use.

● INEXPENSIVE

Nothing to get out of order—All tools are built to stand-up under the most rugged operating conditions.

Hundreds of these versatile testing kits are in use all over the world testing clay and kaolin pits, gold bearing sands, sub-grades for highway and airfield runways, and many other subsurface strata.

Write today for prices and Bulletin 26 RS

Over 30 years of experience in the manufacture and development of Drilling equipment.

ACKER DRILL COMPANY, INC.
SCRANTON 3, PA.



TOUGH JOBS! THEY'RE A CINCH WITH THE CENTER HOLE HYDRAULIC PULLER

The OTC Power-Twin Hydraulic Puller is an ideal maintenance tool, compact, powerful... handles 95% of all pulling and installing jobs on tractors, trucks and heavy earth moving equipment... can be used as a portable ram... speeds up pulling and installing jobs 75%... eliminates torque, friction... remote control provides safety. Takes the hard work out of pulling jobs.

A complete range and variety of pullers, adapters and attachments are available to pull or install bearings, gears, pinions, shafts, studs, wheels, pulleys, etc. Works wonders as heavy duty jack, spreader, straightener or compressor.

Amazingly efficient combination of Portable Pedestal Press and 17½ ton Power-Twin Hydraulic Puller. Every shop will find this unit a must... first few jobs pay for it in time, tools and money saved. Move it where you want it... it's portable.



17½, 30 and 50 TON SIZES

Famous OTC Center Hole Ram permits fast, easy adjustment to the work and interchange from push-puller to sleeve puller to bench press.

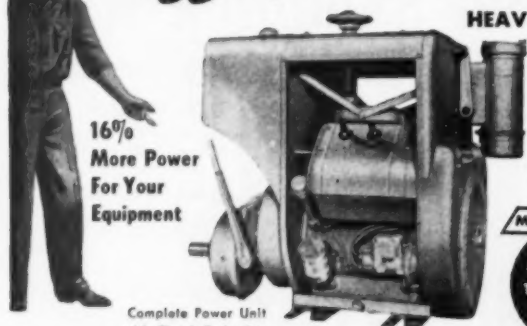
Quickly removing multiple drive shaft with OTC Push-Puller and Power-Twin.



See your jobber for complete information or write us.

OWATONNA TOOL COMPANY
435 CEDAR STREET • OWATONNA, MINNESOTA

a Bigger, Better WISCONSIN



16%
More Power
For Your
Equipment

HEAVY-DUTY Air-Cooled

ENGINE

The NEW Model
VG4D 25 to 36
H.P.

MORE

Power
TO FIT THE
JOB

MORE

Power
TO FIT THE
MACHINE

Complete Power Unit
with Clutch Reduction.

Another engineering achievement . . . the NEW Model VG4D V-type 4-cylinder Wisconsin Heavy-Duty Air-Cooled Engine, increasing the power range to 36 hp. — a power gain of more than 16% over the VP4D, former top engine in the line.

The NEW Model VG4D is an exceptionally smooth-running, even-firing engine. Its light weight and compactness in design simplify the problem of engine installation on modern equipment where weight and space limitations are important factors.

Every one of the traditional Wisconsin 4-cylinder features are built into this new model. These include, to name a few, tapered roller main bearings, dynamically balanced forged crankshaft, mirror finish on crank pins, Stellite-faced exhaust valves and valve seat inserts and honed cylinders for long, dependable, heavy-duty engine life.

The Model VG4D engine is definitely Tops in Performance, delivering a maximum of power per pound of engine weight, at minimum operating and maintenance costs. We invite your request for complete detailed specifications.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

A 7356-14

ONE LEVER automatic skip lift and shaker . . .

SPEEDS CHARGING

CUTS TIME PER BATCH

GILSON'S 6-S Hydraulic



Faster charging steps-up operator's production capacity with GILSON'S patented hydraulic skip. It's "easy does it" as one pull on one lever automatically raises skip and starts smooth, vigorous shaking for fast, clean discharge. For added convenience, the water control lever is mounted right next to the skip lever . . . the discharge lever a step to the rear.

Shorter mixing cycle time, ease of operation combined with rugged, trouble-free durability gives you more batches . . . more profit per day!

And now! . . . GILSON'S 6-S advantages are available at a new low price made possible by new economies of production gained from more than 41 years' experience in mixer design and manufacturing.

Concrete Mixer Model 6-S-PT

GILSON
BROTHERS COMPANY

Fredonia, Wis. Founded in 1911

MAIL
TODAY

to: GILSON BROTHERS COMPANY
343 W. Gilson Ave., Fredonia, Wis.
Please send FREE bulletin with more facts
on _____ mixer.

Company _____
Street _____
City _____ State _____

33

Submersible drainer for tunnels and emergency use

A new submersible pumping unit announced by the Deming Co. Salem, O., while designed for use as a cellar drainer, has other applications such as draining tunnels, underpasses, boiler rooms, elevator pits and many emergency uses. The entire unit can be fully submerged without



Submersible Cellar Drainer

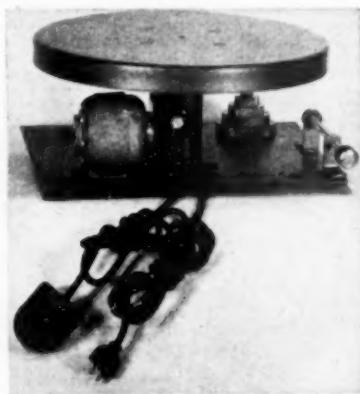
damaging the motor which is sealed in completely by the stainless steel motor case. There are no floats to adjust. Motor starts when water level raises the stainless steel motor case.

Circle the number of this item on the post card and get additional information.

34

New small light work positioner

A new electrically turned, variable speed, work positioner, said to be the smallest and lightest yet offered commercially, has been announced by All-State Welding Alloys Co., Inc. 249 Ferris Ave. White Plains, N. Y. It is offered both as a bench model and as a pedestal model and with accessories to make it inclinable and operable intermittently. The work positioner is easily portable. Without the pedestal the



New All-State "Unique" Work Positioner

complete unit weighs 31 lbs., is 5½ in. high and covers an area 20 in. x 18 in. The turntable is 15½ in. in diameter. It safely carries a work load of 30 lbs. and moves it continuously or intermittently at speeds adjustable upward from ¼ r. p. m. Electrical requirements are less than for a small light bulb. The unit feeds off any 110 v. c. plug.

Circle the number of this item on the post card and get additional information.

**Puts POWER
where you want it**

... at
low cost!



"US" Electric Plants have earned their reputation for dependability under all kinds of working conditions. You'll find the right unit for your needs in the complete "US" line . . . AC and DC units from 300 watts to 200 kw. Write for information.

**UNITED STATES
MOTORS CORP.**

420
Nebraska St.
Oshkosh,
Wis.



They Come to
**New
York**
from everywhere

to enjoy the
Value, Comfort and
Convenience of the
WOODWARD
HOTEL

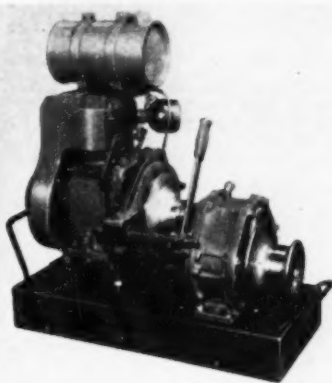
BROADWAY at 55th STREET
Ideal accommodations
for 800 guests
Private baths, showers
and radio. Television!

FROM **\$3.50** **\$5.00**
SINGLE DOUBLE

35

**Lightweight portable winch
uses capstan principle**

A lightweight portable gasoline powered winch with a capstan-type drum for critical control of loads has been announced by St. Anthony Machine Products Co., 2424 East



Stampco Gypswinch

Franklin Ave., Minneapolis 6, Minn. Standard models are equipped with gasoline power units ranging in size from $\frac{3}{4}$ H.P. to 7 $\frac{1}{2}$ H.P.—electrically powered models are also available. Two gripper-type handles facilitate moving the hoist about the job while the fabricated all-steel base may be secured by $\frac{1}{2}$ in. lag bolts to provide a stable platform for pulling or lifting.

Circle the number of this item on the post card and get additional information.

36

**New one-man chemical
fire engine**

A new, powerful, one-man fire-fighting wheeled engine for extinguishing large-scale B and C fires has been announced by the American-LaFrance-Foamite Corporation, Elmira, N. Y. It is a dry chemical wheeled engine, with a capacity of 150 lb. Discharging free-flowing, quick-smothering Alfeo dry chemical, this new Model 150 is a companion-unit to the Model 350. Alfeo's two-man engine with a capacity discharge of 350 lb. of the dry chemical compound. The new Model 150 is only 480 lb. in weight, fully charged, and can be easily wheeled, maneuvered, and operated by one man. It carries the inspection and approval label of Underwriters' Laboratories, with B and C classification.

Circle the number of this item on the post card and get additional information.

**Get
the
FACTS!**

For good living near the job, Schult offers BIG VALUE. For information, write now. Dept. 6604.

SCHULT CORP.
ELKHART, INDIANA



COMMENT

from the

BUTLER ENGINEER

—of Steel, Cement and
"Saturation Points"

Here it is, right from the shoulder. *Never, never have we seen such activity shaping up in the construction field.* What phases? All phases! Highways, expressways, relocations, airfields . . . Atomic energy plants, off-shore concrete construction, dams, homes, buildings of all kinds . . . Concrete products plants—well, as I said,—everything!

The election results seem to have had the effect of lifting a sluice gate to release an immense flood of projects held back by the Dam of Uncertainty.

Will there be steel? Great Day, the supply is better now and getting better all the time. That's a fact—*not* wishful thinking. Every sign, every index, all statistics point—if not to an abundance—at least to a better than adequate flow to meet the ravenous demand.

Cement may be short for a time. I suggest as an answer a 1000 to 3000 barrel Butler Storage Bin to hold you through those anxious moments until the hopper bottoms roll in.

When I look at the number of Ready Mixed Plants (not to mention any other types) now in the engineering phase in my department, I get thinking back 20 years ago. I remember the many conferences, the gnawing anxiety all of us felt about the grave question, "Isn't the saturation point for Ready Mixed almost at hand?"

Maybe I should tell my 14 year old son to tell his grandsons that their first duty when they come into the world is to worry about the Ready Mixed saturation point.

Anyway, I'm in love with '53 already,

The Butler Engineer

BUTLER BIN COMPANY
959 WAUKESHA, WISCONSIN



LUBRIPLATE No 630-AA IS PRACTICALLY A UNIVERSAL LUBRICANT

—says

THE SPOKANE PORTLAND CEMENT CO.

"With the introduction of LUBRIPLATE No. 630-AA, we were able to satisfy all our needs for solid type lubricants with only two LUBRIPLATE Products. LUBRIPLATE No. 630-AA might almost be considered a universal lubricant. Furthermore, it has effected marked savings in both lubricants and labor!"

For nearest LUBRIPLATE distributor, see Classified Telephone Directory. Send for free 56-page "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

**REGARDLESS OF THE SIZE
AND TYPE OF YOUR MACHIN-
ERY, LUBRIPLATE
LUBRICANTS WILL IMPROVE
ITS OPERATION AND REDUCE
MAINTENANCE COSTS.**



WITH THE MANUFACTURERS & DISTRIBUTORS

Oliver Made District Manager. James Oliver has been appointed district manager in the Pacific Northwest for Hyster Co., Portland, Ore.

Independent Pneumatic Changes Name. The 60-year-old corporate name of the Independent Pneumatic Tool Co., Aurora, Ill., has been changed to Thor Power Tool Co.

Named Assistant Sales Manager. H. J. Howerth, Jr., has been named assistant sales manager of the Wayne Division of Gar Wood Industries, Inc.

New Riddell Sales Representative. Stephen L. Ferriol has been named sales representative in the northeastern states for W. A. Riddell Corp., Bucyrus, O. His headquarters will be in Westfield, N. J.

New Distribution for Camm. W. A. Oehler, 27 Lake Drive, Winter Park, Fla., has been granted a franchise by Camm Manufacturing, San Fernando, Calif., for the sale of Surfa-Slick asphalt smoothing iron. His territory covers the District of Columbia, Virginia, North Carolina, South Carolina, Georgia and Florida.

Motorola Promotes Robinson and Fussell. L. Harris Robinson, heretofore manager of Motorola's Region 7, has been appointed manager of the Washington, D. C., office of Motorola Communications and Electronics, Inc., Chicago, Ill. John Fussell, formerly assistant regional manager, succeeds Mr. Robinson as manager of Region 7.

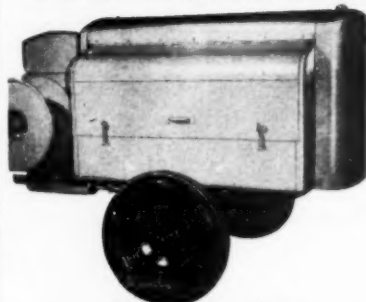
National Sales Representative Appointed. Appointment of a national sales representative together with an expanded production program has been announced by the Tennesfos Manufacturing Co., Moorhead, Minn., manufacturer of Tennesfos belt splicer. The new sales representative, F. M. Hermanson of Fargo, N. Dak., will set up dealers in a 16 state area.

New officers for Inter-State Oil. Hollis D. Immick, vice-president since 1947 and a director since 1940, has been elected president of Inter-State Oil Co., North Kansas City, Mo. He succeeds C. A. (Van) Shepard, who was killed in an automobile accident on February 20. Robert A. Nylander is the new treasurer of the company, and Mrs. C. A. Shepard is the new secretary.

New Appointments by Aerofil Products. Joseph Halperin, recently appointed general manager and general sales manager of Aerofil Products Co., Inc., South Hackensack, N. J., has announced the following appointments: Joseph A. Lynch, as advertising and sales promotional manager; Loyal (Stretch) Lohse as assistant sales manager to handle Government sales; Al Grimaldi as assistant sales manager directing sales of the company's "Auto-Steam" cleaner division; John Carrino as manager of the company's new branch office at South Hackensack, N. J.; Robert (Bob) Willems of Chicago as Midwest Regional Manager; Deryl Yundt of Los Angeles, Calif., as Pacific Coast Regional Manager; Chet Mattison as branch manager at Los Angeles; James Savino as East Coast Regional Manager.

GET YOUR
COMPRESSED AIR
FOR LESS with

smith COMPRESSORS



**MODEL 105-P
POWERED BY CHRYSLER
INDUSTRIAL ENGINE**

You can reduce costs today, by using a Smith 105-P for the majority of your compressor work! Delivers 105 cu. ft. per minute — combines heavy duty with light weight; easily portable. Chrysler Ind. 15 Engine has 6 cyl., 4" bore, 5" stroke, 377 cu. in., 3" crankshaft, 7 main bearings, sodium cooled valves and Stellite valve seats for heavy duty, long life. Compressor valves — stainless steel disc type with Manganese Bronze seats. Improved type pilot valve and simplified control.

**SEND COUPON
FOR LITERATURE & PRICES**

GORDON SMITH & COMPANY
791 College Street
Bowling Green, Ky.
Send complete literature and
prices on the low-cost 105-P
Smith Compressor.

NAME _____
ADDRESS _____
CITY _____ STATE _____
☐ Also send name of nearest dealer.

IF IT'S WIPERS YOU NEED TRY SOME OF THESE

"WIPEX BRAND" QUALITY WIPING CLOTHS

DOMESTIC WIPERS

- No. 11 **ALL WHITES**—Light-weight, general-purpose wiper, washed and sterilized; minimum size 12 by 12 and over.
- No. 12 **NEAR WHITES**—Pastel colors; light weight, general purpose wiper, washed and sterilized; minimum size 12 by 12 and over.
- No. 13 **LIGHT-WEIGHT COLORED**—The same as Near White except darker material.
- No. 14 **MEDIUM-WEIGHT COLORED**—Denim-weight material, cotton sweaters, light-weight pants, etc.; free of heavy seams, pockets, waist bands and other objectionable material, sterilized.
- No. 17 **DOMESTIC WHITE KNITS**—Light-weight underwear, washed, bleached and sterilized; very soft and absorbent, general-purpose wiper.
- No. 19 **RECLAIMED TOWELS**—Turkish and huck; washed, bleached and sterilized; wiper size, durable.
- No. 22 **WHITE COTTON WASTE**—No. 1 quality; free of rag, on threads and lint.
- No. 23 **WHITE COTTON WASTE**—No. 2 quality; threads slightly coarser in texture than No. 1 quality.
- No. 24 **COLORADO WASTE**—Same specifications as White Cotton Waste, except colored.

ALSO ALL TYPES MILL ENDS

- No. 1 **JUNIOR MILL**—New, washed, bleached and sterilized sheeting from cotton mills; no seams, no holes, free of lint, size from $\frac{1}{2}$ to $\frac{3}{4}$ yard.
- No. 2 **MISPRINTS**—New, washed and sterilized colored sheeting, misprinted cloth from the mill, free of lint.
- We specialize in producing high-quality mill ends. The kinds listed above are produced only in our own plant and are standard numbers. The quality will not vary more than 2 per cent.
- Samples gladly furnished on request. Freight prepaid on shipments of 250 pounds or more.
- We guarantee all our wipers to be thoroughly washed and sterilized in our own plant in accordance with all state and city health laws.



**INDUSTRIAL
WIPING CLOTH COMPANY**

P. O. Box 1087
Asheville, North Carolina



- Forms easily compressible cushion
- Highly waterproof
- Low in cost

Made in 5 thicknesses — $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" — in any length or width to meet job specifications. Formed between two sheets of heavy asphalt saturated felt paper, which increases strength and rigidity and improves handling.

Write for the complete Serviced Catalog. Describes the full line of Asphalt, Cork, and Rubber Composition Products.



SERVICED PRODUCTS CORP.
6051 W. 45th ST. • CHICAGO, ILL.

White Names Export Manager. J. A. Kigen, Jr., has been appointed export manager of The White Motor Co., Cleveland, O. His offices will be 441 Lexington Ave., New York, N. Y.

New Viber Distributor. Lee Redman Equipment Co., 610 South 19th St., Phoenix, Ariz., has been appointed Arizona distributor for the complete line of Viber internal and external vibrators.

New Gradall Representative. William C. Worthington has been appointed district representative of the Gradall Division of The Warner & Swasey Company for the Southeast region, with headquarters at 1709 Candler Building, Atlanta 3, Ga.

New Hough Sales Manager. G. A. Tamblyn has been appointed sales manager of The Frank G. Hough Co., Libertyville, Ill. He has been with the company 11 years and has been assistant sales manager since 1948.

McConkey Promoted by Timken. Richard K. McConkey has been appointed assistant general manager of the Industrial Division of The Timken Roller Bearing Co., with offices at Canton, O. He was formerly district manager of the Industrial Division at Moline, Ill.

Elected Vice-President. L. C. Perkinson has been elected vice-president and G. C. Walker has been elected treasurer of American Cyanamid Co., New York, N. Y. Mr. Perkinson had been treasurer of Cyanamid since 1945 and a director since 1946. Mr. Walker had been assistant treasurer since 1951.

Fitts Promoted by Mack Trucks. K. L. Fitts, heretofore assistant manager of National accounts division of Mack Motor Truck Corporation, New York, N. Y., has been appointed manager of off-highway truck sales. He succeeds P. J. Fleming, who retired recently after a long career with Mack.

Bentley Made General Sales Manager. Ernest F. Bentley, heretofore operations sales manager, has been appointed general sales manager of the Detroit Diesel Engine Division of General Motors, Detroit, Mich. He succeeds V. C. Genn, who died in January. Other appointments include Robert V. Baxley as operations sales manager; John C. Campbell, as manager of manufacturers' sales, and Louis A. Steele as industrial sales manager.

A-C Export Sales Appointments. Myron W. Rhoten has been named territory sales manager for the European area, Tractor Division, Allis-Chalmers Manufacturing Co., Milwaukee, Wis. He succeeds George A. Gillespie, recently appointed resident manager of the company's Paris, France, office. Rhoten is succeeded as export service manager in the home office of the company by Clyde Crozier who has been on his staff since 1951.

VULCAN PAVEMENT AND CLAY DIGGING TOOLS

ARE MADE in a complete line of sizes to fit all standard compressed air hammers.

Send for NEW Vulcan illustrated CATALOG today.



TOOLS — THE WORLD OVER —
NOTED FOR QUALITY AND DURABILITY™

VULCAN TOOL MFG. CO.
QUINCY, ILL.



THE VENETIAN

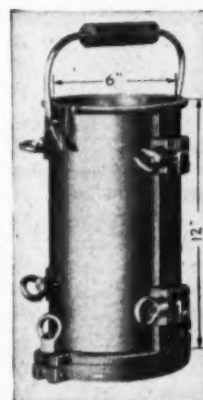
VENETIAN CAUSEWAY, FACING
BISCAYNE BAY

Attention: American Society of
Civil Engineers

Beautiful, quiet surroundings... easiest access by freeway to all sport and amusement centers. Excellent cuisine and elegant Baroque dining room. Open patio and roof sun deck. Large parking lot. Reduced rates on long stays. Write or wire for reservations if you desire further information.

Open the year 'round

MIAMI'S HOTEL CLOSEST TO THE
BAY AND THE BEACHES



for
concrete
compression
test
specimens
USE
MOLINE

CONCRETE TEST CYLINDER MOLDS

You can produce accurate test specimens to exact measurements with Moline Molds. They meet all ASTM requirements and are virtually indestructible—because they are made of refined malleable iron. Portable for laboratory or field work. Various sizes available including standard 6" x 12" Model A (illustrated). Remember—a test is only as good as the specimen.

MOLINE IRON WORKS Moline, Ill. U.S.A.

75 Years of Service

INDEX TO ADVERTISERS

Acker Drill Company	139	Ford Motor Company	11	Pariso Bros.	131
*Adams Mfg. Co., J. D.	47	Forke Brothers	128, 138	Parson Company	6-7
Aeroll Products Company, Inc.	120	Frank, Jacobus F.	120	Penoyer & Co., D. C.	130
Alban Tractor Company, Inc.	130	Fredericktown Sand & Gravel Company, The	132	Pfaff & Kendall	48
*All Purpose Spreader Co.	118	Freeman & Co., Samuel T. (Bianchi, Central, Munroe-Langstroth & Hugo)	135	Phillips Machinery Company	131
*Allis-Chalmers	2nd Cover, 34-35	*Gallon Allsteel Body Co., The	36	*Pioneer Engineering Works, Inc.	108-109
American Bitumuls & Asphalt Co.	101	*Gallon Iron Works & Mfg. Co.	44	Pressed Steel Car Co., Inc. (Jahn Trailer Div.)	64
American Diesel Service	134	*Gar Wood Industries, Inc.	126, 127	Quick-Way Truck Shovel Co.	52
*American Steel & Wire Division (United States Steel Corporation)	31	General Motors Corp. (Chevrolet Motor Div.)	67	Reese & Sons, Herbert	131
Anderson Equipment Co.	134, 136, 138	Gilson Brothers Co.	140	Ruemelin Manufacturing Co.	46
*Armco Drainage & Metal Products, Inc.	4	Goodman, A. J.	133	*Sauerman Bros., Inc.	92
Arps Corporation	46	Goodyear Tire & Rubber Co.	3	Schull Corporation	141
Athey Products Corp.	61	Gorman-Rupp Co., The	93	Sealy, J. C.	137
Atlantic Tug and Equipment Co. Inc.	133	Grace Manufacturing Co., W. E.	118	*Seaman Motors, Inc.	28
*Austin-Western Company	37	*Gradall Division of the Warner & Swasey Co.	8	*Servicised Products Corp.	143
Baker Mfg. Co., The	39	Gunderson-Taylor Machinery Co.	94	Shirley Equipment Co.	125
*Baldwin-Lima-Hamilton Corp.	25	Gunite Contractor	133	*Shunk Mfg. Company	121
*Barber-Greene Company	99	*Harnischfeger Corporation	107	Silver Brothers	134
Bark River Culvert & Equipment Co.	129	Harvey, M. L.	133	Sindlinger Supply Co.	130
Barker Bros., Inc.	133	*Hauck Manufacturing Co.	124	Slade Tractor Co.	134
Beers, Inc., J. H.	130	Hell Co., The	26-27, 123	Smith, J. H.	130
Behr & Sons, Inc., Joseph	129	Hetherington & Berner, Inc.	116	Smith & Company, Gordon	142
Bell Co., Inc., James W.	134	Hooker, Harold W.	138	Smith & Robinson, Grading Contractors	133
Bethlehem Steel Co.	1	Hotel Venetian	143	Southern Machinery & Equipment Co.	136
Bianchi, Central, Munroe-Langstroth & Hugo (Samuel T. Freeman & Co.)	135	Illinois Road Equipment Co.	136	Standard Oil Co. (Indiana)	18
Black, R. S.	132	Industrial Wiping Cloth Co., Inc.	143	Standard Steel Works	119
Black Top Paving Co.	137	International Harvester Co.	22-23, 32	Steiner Co., George	132
Blaw-Knox Company	16-17	*Jackson Vibrators, Inc.	98	Steven Bros. and The Miller-Hutchinson Co., Inc., and T. L. James & Co., Inc.	138
Briggs & Turivas	134	Jaeger Machine Co., The	20-21	Stoody Company	57
Bucyrus-Erie Company	33	Johnson Company, C. S.	6-7	Swenson Spreader & Mfg. Co.	114
*Butler Bin Company	141	Koch, Kenneth C.	129, 133	Thew Shovel Company, The	29
Caterpillar Tractor Co.	5, 49, 52, 3rd Cover	Koehring Company	6-7	*Thurman Machine Company	50
Chattahoochee Trading Company	129	Kwik-Mix Company	6-7	*Timken Roller Bearing Co.	Front Cover
Chevrolet Motor Division (General Motors Corp.)	67	Lestan Corporation	134	Tractor & Equipment Co.	134
Chrysler Corporation (Industrial Engine Div.)	41	LeTourneau, Inc., R. G.	12-13	Triangle Construction Co.	138
Clauss & Sons, Felix	131	*Littleford Bros.	114	Troyer, Stanley B.	136
*Clipper Mfg. Company, The	42	*Lubriplate Division, Fiske Brothers Refining Co.	142	Union Wire Rope Corporation	95
Consolidated Rubber Corp.	131	McCarter Iron Works, Inc.	112	Unit Crane & Shovel Corp.	115
Contractors Machinery Co.	138	McConaughay, K. E.	117	United Southern Contractors, Inc.	134
*Cummins Engine Company, Inc.	Back Cover	McGee Co., Walter W.	137	United States Motors Corporation	141
De Laney Paving Company	134	McLean Co., The	137	*United States Steel Corporation (American Steel & Wire Division)	31
Delaware Tractor Co.	131	McNamee Ready-Mix Concrete Company	132	Vandevanter Auto Sales	130, 131
Diesel Construction Equipment Co., Inc.	137	Madsen Iron Works, Inc.	100	*Vulcan Tool Mfg. Co.	143
Dodge Division	24	Maguire Industries	102	*Warner & Swasey Co.	8
*Dorsey Trailers	38	Maintenance Co., Inc., The	138	Welding Shipyard Division of Bulk Carriers Inc.	134
Double J Manufacturing Co., Inc.	137	*Master Vibrator Company	91	Wellman Company, The S. K.	43
Douglass Construction Co.	138	Meinersmann, Charles	130	*Wellman Engineering Co., The	48
Dow Chemical Co., The	10	Mertes Machinery Company	132	Wenzel Machinery Rental & Sales Co.	137
Dravo-Doyle Co.	130, 134	*Michigan Power Shovel Co.	89	White Mfg. Co.	124
Eimco Corporation	30	Miller Research Engineers	94	Willis Construction	133
Etnyre & Co., E. D.	98	Miller Spreader Corporation, The	125	Winkelman Co., Inc., D. W.	134
Euclid Road Machinery Corp.	111	Mississippi Valley Equipment Co.	136	Wisconsin Motor Corporation	140
Euclid Sales & Service Inc.	133	Moline Iron Works	143	Wood Manufacturing Co.	45
Farino Excavating Co., Inc.	132	Natural Rubber Bureau	9		
*Felker Manufacturing Co.	50	Northwestern Auto Parts Co.	132		
Fish Co., Charles V.	130	*Oliver Corporation, The	19		
*Fiske Brothers Refining Co., Lubriplate Division	142	Owatonna Tool Co.	139		
*Flinthole Co., The	40	*Owen Bucket Company	122		
Forbes Motor Co.	136				

Advertisers with * are represented in the 1953 edition of Gillette's Heavy Construction Profiled Catalog. Please refer to it for additional information on any of their products.



Powered right for fast loading

Lugano Bros., Inc., of Belleville, N. J., depend on Cat* Diesel Engines in their shovels. This Lorain with a $1\frac{3}{4}$ -yard bucket is powered by a husky Caterpillar D13000 Engine. Loading fill for road construction in Caldwell, N. J., the shovel puts 10 yards of earth in each truck in less than two minutes.

On this job the truck schedules are irregular because of a five-mile haul, but the shovel is able to average 1,800 to 2,300 yards in a nine-hour day.

One reason why contractors choose Caterpillar power for their excavating machinery is simple, dependable, economical operation. Cat Engines use No. 2 furnace oil without fouling. Twelve sizes of engines and electric sets, producing up to 500 HP or 315 KW,

are available. Leading equipment manufacturers can supply these money-saving power units in the machines they build, and your Caterpillar Dealer can furnish them for replacement power. His reliable service and genuine parts stock add to their long, trouble-free work life. Let him prove their dollars-and-cents advantages on your own jobs.

Caterpillar Tractor Co., Peoria, Illinois.

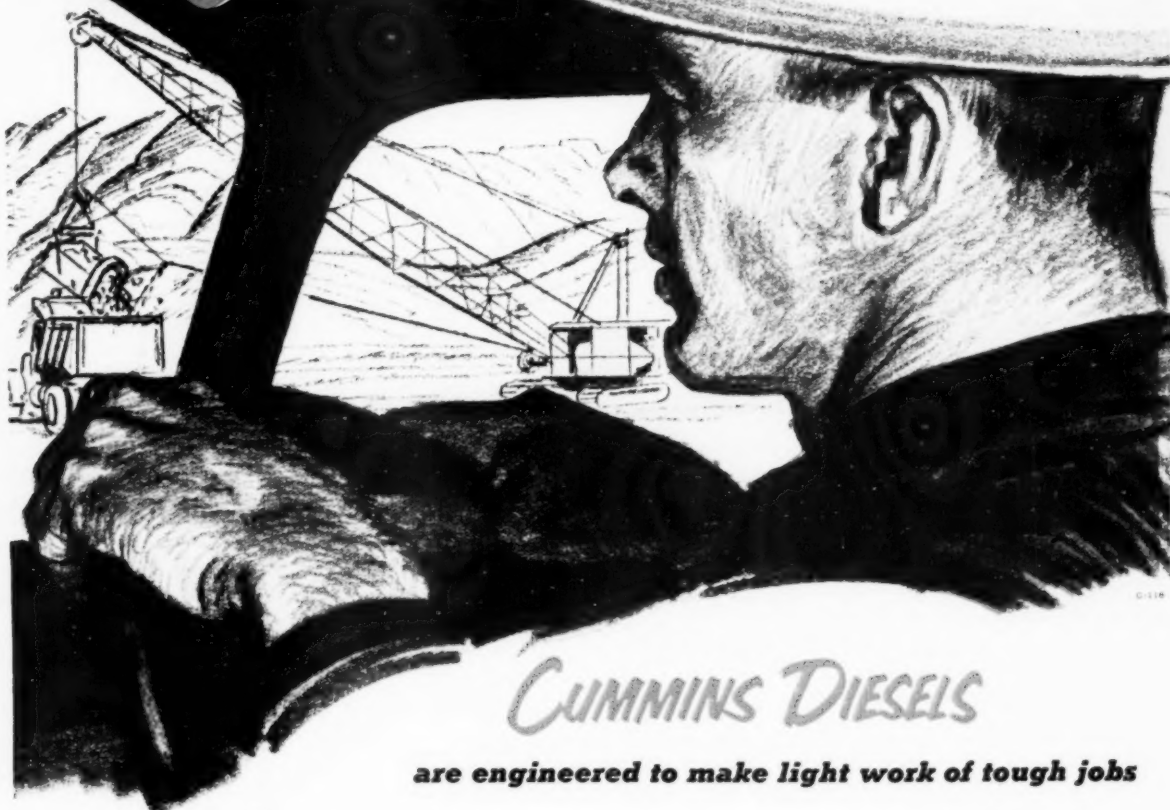
CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—(C)

**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**

*Men who depend on power...
know they can depend on*

CUMMINS®



CUMMINS DIESELS

are engineered to make light work of tough jobs



**Enjoy thrilling 16mm
Technicolor Sound Movie
"DIESEL RACE CAR"**

**PRINTS AVAILABLE FOR GROUP
SHOWINGS! WRITE TODAY.**

***Leaders in rugged, lightweight
high-speed diesel power!***

CUMMINS

Why do so many construction men count on Cummins for dependable power in toughest going?

You'll find part of the answer in the special kind of versatility that belongs to Cummins Diesels alone. It's versatility that goes beyond the handling of all kinds of jobs. It's actually an ability to meet every power requirement that any situation demands . . . to save on fuel, do more work per dollar, whether the call is for continuous power or stop-and-go operation over a wide and flexible speed range.

Yes, you can count on a (60-600 h.p.) Cummins Diesel for dynamic versatility in every job—performance that stems from an exclusive fuel system and precision engineering. See your Cummins dealer for all the facts. He's a diesel specialist . . . ready to help solve your power problems.

CUMMINS ENGINE COMPANY, INC.

Columbus, Indiana

Export: CUMMINS DIESEL EXPORT CORPORATION
Columbus, Indiana, U.S.A. Cable: CUMDIEX